EXHIBIT "P"

(Curriculum Vitae marked Defendant's Exhibit U for identification.)

(CD marked Defendant's Exhibit V for identification.)

THE COURT: People ready to proceed?

MR. GLASS: Yes, we are, Your Honor.

THE COURT: Defense ready to proceed?

MS. EFFMAN: Yes.

(Whereupon, the jury entered the courtroom.)

THE COURT: Please be seated. Members of the jury, we had a few technical difficulties, and that was the cause for the delay this morning. So, I apologize for that. At this time, the defense may call their next witness.

MS. EFFMAN: I call Dr. Jan Leestma.

JAN E. LEESTMA, M.D., after first having been duly sworn by the Clerk of the Court, was examined and testified as follows:

THE CLERK: The sworn witness is Jan E. Leestma, L-E-E-S-T-M-A.

MS. EFFMAN: Judge, as a preliminary matter, the People are not going to have any objection based on foundation for moving into evidence certain pieces of evidence; Defendant's R, which are gram stain slides; a CD, Defendant's V.

THE COURT: V, you said?

MS. EFFMAN: V, subject to certain redactions.

And also will be moving in Defendant's P, which are the obstetric records of Wilhemina Hicks.

THE COURT: Do you want to offer those in evidence at this time?

MS. EFFMAN: Yes.

THE COURT: People's position?

MS. BOOK: That's correct, Your Honor.

MR. GLASS: Was it P?

MS. EFFMAN: P, R and V.

MS. BOOK: No objection, Your Honor.

THE COURT: Defendant's P, R and V are received in evidence without objection.

(Defendant's Exhibits P, R and V marked for identification received in evidence and marked Defendant's Exhibits P, R and V in evidence.)

DIRECT EXAMINATION

BY MS. EFFMAN:

Q. Good morning, Dr. Leestma.

A. Good morning.

Q. Would you please state your full name for the record?

A. Jan Edward Leestma, L-E-E-S-T-M-A.

Q. And where do you currently live?

A. I live in Chicago, Illinois.

Q. And what is your profession?

A. I'm a medical doctor, a neuropathologist.

Q. And can you tell the jury, what is a pathologist?

A. A pathologist is a medical specialist usually. It's a recognized medical specialist, and the work that the pathologist does is to understand the mechanisms of human disease; that is, how a bug might kill you or affect tissues in the body, how a cancer behaves, how it starts, how it plays itself out, how it may bring the end of life. Every form of disease is fair game to the pathologist, and our job is to understand how it works, basically.

Q. Are you a licensed physician?

A. Yes, I am.

Q. In what states are you licensed in?

A. Illinois and Michigan.

Q. And how long have you been licensed to be a physician?

A. My Michigan license came first - I think it was 1965 - a year after I graduated from medical school, and I was licensed in Illinois in 1971.

Q. Can you tell us a little bit about your educational background starting with college?

A. Sure. I attended Hope College in Holland, Michigan, graduating after four years in 1960 with a Bachelor of Arts degree in chemistry and biology, basically pre-med. I then went to the University of Michigan School of Medicine in Ann Arbor for four years, graduated in 1964 with an M.D. degree. I

then elected to pursue the study of pathology, and to that end, went to the University of Colorado School of Medicine Medical Center in Denver, where I began my training, which consisted of two years of so-called anatomic pathology, or general pathology. That's where I learned how to do an autopsy, look at surgical specimens that came from the operating room, and beginning my research career, as well. That program lasted two years, and that's what I did.

At the end of that time, I decided to continue on, but in neuropathology, or study of diseases - same deal - with the nervous system, and I began that in Denver, also. That was a two-year program. I took the first year in Denver and then transferred to the Albert Einstein College of Medicine in the Bronx, New York, where I completed training in 1968.

Q. Can you tell the jury, what is anatomic pathology?

A. Anatomic pathology is basically general pathology, as I have indicated, study of diseases of every organ in the body.

Q. Essentially, what is neuropathology?

A. Same thing, only just honing down on the diseases of the nervous system, the brain and spinal cord, things of that sort.

Q. Following your fellowship at the Albert Einstein Hospital in Bronx, what did you do next, Doctor?

A. We were in the midst of Vietnam conflict, and I was obligated to serve in the military, but I beat them to it, I

guess, and volunteered and was assigned to the United States Air Force Medical Corps and was allowed to continue finishing my training, and at the end of that, I would be obligated to go on active duty, which I did. I came in as a captain of the Air Force Medical Corps and was detailed to the Armed Forces Institute of Pathology, and I joined the service organization on the campus of the Walter Reed Army Medical Center in Washington, and I was obligated for two years, but I served three. The first was doing genitourinary pathology, needed somebody there, so that's what you do. At the end of that time, I was able to transfer to the neuropathology section of that institute, where I served two more years, and I was honorably discharged with rank of major from the Air Force Medical Corps in the summer of 1971.

Q. Tell the jury --

THE COURT: Can I interrupt you for one second? Ma'am, do you want to take a break?

TRIAL JUROR: I'm just having an asthma attack.

THE COURT: Okay. Do you wish us to take a break?

TRIAL JUROR: I'm sorry, but yes.

THE COURT: That's okay. Don't be sorry. We are going to take a break right now. Please do not discuss the case amongst yourselves or form any opinion about the case. We will take a break and come back

momentarily.

(Brief recess taken.)

(Whereupon, the jury entered the courtroom.)

THE COURT: Please be seated. Okay now? If you or anyone else at any point needs a break, don't apologize. Just get my attention, and we will take a break at any time. You may continue, Ms. Effman.

Q. Doctor, can you tell us what you did during your two years at the Armed Forces Institute, the last two years you were there? Would you tell the jury what you did during the last two years?

A. The job at the Armed Forces Institute?

Q. Yes.

A. As I indicated before, this institute now, unfortunately, has disbanded after 150 years. It was the main consultive agency for pathology issues for the Armed Forces; Army, Navy, Air Force, Public Health Service. That is, if there were a death someplace, a soldier or retired person, whatever, and there was some issues regarding the brain, and the local facility wanted to refer that for further consultation and diagnosis, it would come to the Armed Forces Institute and might land on my desk, in which case it could be an autopsy, trying to figure out what the process was, diagnosis. It could be a surgical specimen of a brain tumor or some such thing, or in the case of the GU, it could be a

testicular tumor or a kidney tumor or something like that. So, my job and others in that branch were to offer those services.

They also expanded to the Veteran's Administration. So, we had quite a huge amount of material coming in, also from civilian hospitals all over the world desiring somebody to take a second look or a third look or whatever.

Q. And while you were stationed, so to speak, in the D.C. area, were you affiliated with any hospitals there?

A. Yes. I had volunteered for doing work at -- I would offer the similar services, teaching to the residents of the Walter Reed Army Medical Center. They had pathology residents in training there, and I would be involved in teaching them; went to the Bethesda Naval Hospital for the same purpose. There were several medical schools in Washington at the time. Most of them did not have a neuropathologist, so several of us would volunteer to go over and teach medical students, do a brain autopsy session, where we would demonstrate whatever was the finding there, and I also did service at the -- it was in transit at the time, but the Coroner's Office for the District of Columbia while I was there, as well.

Q. And what schools did you teach at in the Washington, D.C., area?

A. Howard University, George Washington University, Georgetown University.

Q. After completing your military service and being

honorably discharged, what did you do next, Doctor?

A. Well, after being released from the Service, I set about finding a job. I wanted to work in the academic world, and finally determined and was offered a position at Northwestern University School of Medicine in Chicago, where I live, as an Assistant Professor of Pathology and Neurology and Chief of Neuropathology.

Q. And can you tell us what the general job duties were in that position?

A. Well, basically, it falls into the service load, which means working with the autopsy service to provide my expertise; and to those kinds of cases, teaching residents on how to read slides, how to learn how to do the work of a pathologist, and then offering teaching to the residents in neurosurgery, neurology, pathology, sometimes other fields, even taught at the dental school and the nursing school sometimes; and so that would be the service and teaching load. And then I was expected to develop a research program, which I did, and received some National Institute of Health grants to pursue some of those studies.

Q. And Doctor, how long were you employed through Northwestern?

A. Let's see. I left Northwestern in 1985, after having been there, like, about 14 years, and I, at that point, switched to the University of Chicago, the Division of

Biological Sciences and their medical school, as a full Professor of Pathology and Neurology and Associate Dean For Student Affairs and some academic programs.

Q. And what did you do in that capacity?

A. Primarily administrative. I did some teaching, very little, if any, service work. I was always there if somebody wanted to show me a case, but it was mostly administration regarding the admission of people to the medical school and the graduate programs in life science, like botany and biology and so forth, and providing the administrative backup for the students, financial aid and all that sort of business.

Q. And how long were you at the University of Chicago?

A. A couple of years.

Q. Where did you go next?

A. I went then to a neurosurgical hospital called the Chicago Institute of Neurosurgery and Neuroresearch as their Associate Medical Director and their neuropathologist, and I was with that organization for 13 or so years or more, and finally retired from that organization.

Q. In that organization, did you have occasion to do brain autopsies?

A. Yes, all the way along. I didn't do very much of that while I was at the University of Chicago. I had a parallel appointment some years before with the Cook County Medical Examiner's Office to act as their neuropathologist and

consultant, and I did that for 11 years, I think, but when I was at the Chicago Institute of Neurosurgery, I did a lot of administrative stuff, but also was probably in the operating room every day rendering diagnoses for brain tumors or whatever else happened; and if one of our patients should die, we had an autopsy permit. I would probably do the autopsy. So, a full service spectrum of things that I had always done, plus administration.

Q. Other than the hospitals you have mentioned in Washington, D.C., can you tell the jury what hospitals you have been affiliated with over the course of your career?

A. Yes. I don't know. I think I had, at least with the military -- I mean, there was no official affiliation, I don't think; I just went there. I was asked to be there. The other institutions were pretty much a voluntary situation, teaching and so forth at the coroner's office. I was paid for that procedure, for those cases that I did there, so I had some official appointment.

Q. And when you worked at the Cook County Medical Examiner's Office, that was in the capacity of coroner?

A. Yes. At the time, before I worked with them, it was a coroner's system; that is, the coroner was sometimes a physician, sometimes not, a political position, and that switched over to a medical examiner system, where a board certified forensic pathologist had to be at the office. And

when that went in, I came in.

Q. How long were you at that job for?

A. I was there, I think, 11 years, 12 years, something like that.

Q. During the course of your career, have you been affiliated with Children's Memorial Hospital in Chicago?

A. Sure. The last two or three years of my tenure at Northwestern was spent as Chief of Neuropathology at the Children's Memorial Hospital, where I did everything I did every place else, only just restricted to the pediatric cases.

Q. What does your current practice consist of?

A. I'm retired from hospital practice, and I maintain my own office, where I do consultations of forensic issues that relate to the brain and nervous system, and that may involve doing an autopsy from time to time. It may involve, more often than not, examining case materials, microscopic slides, photographs, the body of cases and being prepared to offer opinions and insights into whatever the issues are.

Q. Are you board certified?

A. Am I what?

Q. Are you board certified?

A. Oh, yes, sure.

Q. And in what areas are you board certified?

A. I have certifications in anatomic pathology and neuropathology from the American Board of Pathology.

Q. And what year did you obtain those certifications?

A. 1970.

Q. Do you hold any memberships in any professional societies?

A. Yes.

Q. Tell the jury about some of those, please.

A. I'm a member of the American Association of Neuropathologists, and have been for probably going on 40 years now - that's the main one - and the international association which flows from that. I'm a member and fellow of the American Academy of Forensic Sciences, and I have some other memberships, but those are the main ones.

Q. Have you held any editorial positions?

A. Yes.

Q. During the course of your career?

A. Yes.

Q. Tell the jury about some of those, please.

A. Some of the early ones had to do with a publication -- I don't think it exists anymore, but it's called the Yearbook of Pathology, and it was one of these things that, you know, what happened, what was published in the field of pathology in the course of a year, and then the important articles were abstracted, which I did, with respect to neuropathology, eye, forensic, and there may have been one other field; so, I did that for five or six years. And then,

all the while, frequently being asked by, on an ad hoc basis, by editors of other journals to review articles and manuscripts, and I guess for five or six years now, I have been on the Editorial Board of the American Journal of Forensic Medicine and Pathology here in the United States.

Q. Have you authored any articles in the area of pathology, anatomic pathology or neuropathology?

A. Yes. I think we are approaching about 103 or 104 now that represent articles in medical journals or book chapters or books or anything that's publishable or, at least, out there and available.

Q. And can you name some of the journals you have been published in?

A. Well, let's see. I was published in an article or two in cancer, I guess, in a number of the neuropathology journals. Let me think. They are published, and then they go out there. American Journal of Forensic Medicine is one, Journal of Forensic Sciences; a spectrum of journals that relate to the interests that I had at the time.

Q. Have you published any books?

A. Yes.

Q. Can you tell the jury about that, please?

A. When I was finishing my training and residency, I published, co-authored a book that was called Histologic Patterns in Tumor Diagnosis, meaning that there are certain

things under the microscope that sort of immediately click or should for a diagnosis, and published that book as an aid to young pathologists getting started, the craft, really, of how to do surgical pathology. I did some book chapters for a variety of textbooks, one of which is -- one of the classics, Anderson's Textbook of Pathology, co-authored a couple of chapters in there on the genitourinary system, and there have been a number of other book chapters. The primary book that I virtually wrote was called Forensic Neuropathology, and that was published 20 years ago in 1988, and then there's been a new version of it. I see some copies sitting here, of the recent version of that book, a second edition that came out with a publication date of 2009.

Q. Is this the book, Doctor?

A. That's the one you have in your hand. I have done a number of chapters on a book that, again, is coming into a second edition called Sudden Death and Epilepsy, and I did a number of chapters in the first one 20 years ago, and now the second one is coming out, and I will co-edit that volume, as well.

Q. Doctor, are you a member of any boards?

A. Yes, a number of boards. I have been a member of the Horizon Hospice Organization in Chicago, which is the first hospice organization in the Chicago-land area. I'm no longer active on that board but interested. I have been on the board

of the Juvenile Protective Association of Chicago for probably 25 years or more now.

Q. What are your duties on that board, Doctor?

A. What is it?

Q. What is it, generally?

A. Well, the JPA, as it's called, is a direct service organization to the families of abused and neglected children, acting as a friend of the court and working with the Department of Children and Family Services to try to keep families together and to provide direct social services to those families to help them with that, and I have been involved with that organization for quite awhile.

Q. Now, Doctor, have you been qualified as an expert in pathology and neuropathology?

A. Yes.

Q. How many times have you testified in that subject matter?

A. Well, in giving -- testifying in court proceedings such as this one, probably a couple of hundred times. In depositions and things that may or may not come into trial, another couple of hundred. So, it's probably been three or 400 times, something like that.

Q. In how many states have you testified in?

A. I think it's over 40 now. Every now and again, I have to go through it, but 40 to 42 states in the Union.

Q. In all the states, were you qualified as an expert in pathology or neuropathology?

A. One way or another, depending on the issue of the case, yes.

Q. And have you testified before in New York State?

A. Yes, I have.

Q. Have you ever testified for the prosecution?

A. Yes.

Q. In what office have you testified for or offices?

A. The most recent ones were the District Attorney's Office or State's Attorney in San Diego, California.

Q. And how many brain autopsies have you performed during the course of your 40 plus year career?

A. My calculation is about 20,000 brain examinations, brain autopsies. That's about as close as I can come.

Q. And of those 20,000 brain autopsies that you performed, do you have an estimate how many of those involved children?

A. It would be an estimate only, but I imagine a couple of thousand, I suppose.

Q. I'd like to show you what's been marked as Defendant's U for identification. I ask if you recognize that.

A. Yes, I do.

Q. And what is Defendant's U?

A. That is my curriculum vitae and it is, as far as I

know, up to date to about now.

Q. Does that curriculum vitae fairly and accurately represent your educational work and background in neuropathology and anatomical pathology?

A. It's all there, all the positions I have occupied. I didn't include abstracts and speeches given or talks given. That would -- any publications that are there are those that are regular publications and not just, you know, press pieces or something like that.

MS. EFFMAN: At this time, I move Defendant's U into evidence.

MS. BOOK: Your Honor, the People would object, as this is bolstering and cumulative of what this witness has already testified to.

THE COURT: Defendant's U is received in evidence over objection by the People.

(Defendant's Exhibit U marked for identification received in evidence and marked Defendant's Exhibit U in evidence.)

Q. Turning your attention to this case, Doctor, did you have occasion to review medical records concerning [redacted] and [redacted] [redacted]

A. Yes, I did.

Q. Can you tell the jury what records you have reviewed?

A. I have no idea if it's the complete medical records or not. I have no way of knowing, but I have some records

regarding the birth of both of these babies and some followup in terms of well baby and pediatric visits. I have medical records that relate to the last -- the hospitalization for the baby in question. And as part of those medical records, I received a disc that had images of a CT scan done on, if I'm not incorrect, 9/21. I think it's 2007. I have autopsy documents, reports related to the autopsy of the baby. There are photographs of -- some scene photographs that were provided, as well as photographs of the baby before, during and after the autopsy. I have, then, autopsy tissue slides that were prepared at the time of the autopsy and a couple of others that I requested to be prepared, and I think that's it.

Q. So we are clear, Doctor, Defendant's R in evidence, does that reflect the microscopic slides that you requested to review as part of this case?

A. Yes. It looks like it. I would have to -- I made images of these, if I could lay them out side-by-side to be sure every slide is there, but it looks like it's my writing on the bag that indicates the name of the case, and this was returned to you not long ago.

Q. And at some point, Doctor, did you take pictures of these slides that you reviewed?

A. Of some selected areas. I have a digital camera on my microscope that I could -- if there was some particular finding I wanted to immortalize, I could take a picture of it

and then make prints or do whatever I wanted with them later.

Q. Did you, in fact, take some photographs of some of the slides that you reviewed?

A. I did.

Q. And, in fact, did you place them on a CD that's in evidence now as Defendant's V, which is sitting in a laptop over there?

A. It's in my laptop in the form of a Power Point presentation that has some very selected microphotographs and so forth.

Q. And apart from any picture of a CT scan, are the rest of the slides pictured on the CD, are those all things that came from the autopsy?

A. That's right. They are direct representations of portions of the slides that are in that plastic bag.

Q. Doctor, if I told you that the child went to the hospital on September 21, 2008, and that's when the CAT scan took place, would that be accurate?

A. That's true. I think it was done a few hours after admission of the child.

Q. Did you also have for your review the obstetrical records of the mother?

A. Correct.

Q. And when we refer to hospitalizations, did you have the opportunity to review records from two different hospitals

that saw this child on September 21, 2008?

A. Yes. I think that the child was brought first to a local hospital and then brought -- transferred to a larger institution, and I have records from both of those.

Q. And do your records also include the birth records of both babies?

A. Yes. There was -- I'm somewhat confused by it because, apparently, the identity of the twins got mixed and switched and, so, I don't know exactly who is who, and maybe nobody does, but there were records regarding both of those babies.

Q. As part of your review, did you also receive a copy of the pathologist's report in this case?

A. Yes.

Q. Are these records and materials the kind of materials ordinarily relied upon by experts in your field of neuropathology and anatomic pathology?

A. These are the kinds of things that we examine all the time, either with a contemporaneous case or one that we are called on consultation.

Q. And are the records and materials the kind of materials that are accepted in your profession as reliable in forming professional opinions?

A. Yes. There's a gradation of reliability, and that has to do, by extension, with the objectivity. In other words,

a good example of that is, if I had the actual brain sitting in a crock full of formaldehyde, that's as objective as it gets. I mean, whatever is there can't be messed with, and nobody can do that. The next best things are photographs of specimens and so forth; that, of course, you're dependent upon the technical quality, but more or less, those are things that can't be fudged. It's the straight information. Microscopic tissue slides are also very, very objective and reliable, to the extent to which you can interpret what's there, and you are limited somewhat by the sampling that the person ahead of you, the pathologist who did the autopsy made; so if they didn't take a slide of something, obviously, you can't examine it, but whatever you do have is objective and the best kind of evidence you can look at.

Another level would be radiologic studies, when you have the actual disc or the films, whatever, to look at. You are limited only by the technique that's used and the method. If it's 80 percent effective, then you probably can't do any better than that, but that's subjective and can't be messed with by anyone.

Then you get onto medical records and reports. Autopsy reports are through the eyes of whoever did the autopsy, and with -- it may be reliable or it may not be. The thing about the autopsy thing is that whatever is said in the report, you can go back to the pictures, if they exist, or the

microscopic slides and have a check and balance there. Medical records may be reliable. It's the only thing you have, but there are sources of error and mistake and omissions and so forth that can find their way into that. Again, you do have some opportunity, if you have better evidence, to compare and see whether the things are corresponding or maybe they don't.

Then you get down the chain where you end up with witness accounts and interviews and so forth and so on. Those, you have to take them for what they are, contemporaneous accounts by somebody which may or may not be complete, truthful correct or whatever. And, so, there is kind of a pyramid, if you will, of reliability, and I have tried to outline what that is.

Q. Doctor, fair to say that the records you were provided with as part of this case, the slides, the autopsy report, the microscopic sections, all the records you reviewed are documents that people in your profession rely upon regularly to form opinions?

A. Absolutely, right.

Q. And Doctor, based on your review of the records, materials, along with your education and experience, do you have an opinion, to a reasonable degree of medical certainty, as to the cause -- strike that. To the state of this child's health upon arrival at Samaritan?

A. I do.

Q. And can you please tell us what your opinion is?

A. In short, this was a sick child who, in all likelihood, was suffering from a bacterial infection of the respiratory tract and, perhaps, brain at that time.

Q. Based on your review of the records and materials and your educational experience, do you have an opinion, to a reasonable degree of medical certainty, as to the prognosis for this child upon his arrival at Samaritan?

MS. BOOK: Your Honor, may I voir dire before the witness answers?

THE COURT: Yes, you may.

VOIR DIRE EXAMINATION

BY MS. BOOK:

Q. Good morning, Dr. Leestma.

A. Good morning.

Q. My name is Christa Book. I work for the DA's Office. Now, Dr. Leestma, you are not a board certified forensic pathologist; are you?

A. I am not.

Q. And what is the difference between a forensic pathologist and a regular pathologist?

A. Forensic pathologist would be one who classically works in the context of a coroner's or medical examiner's office, or in any case, is engaged in the generation of cause and manner of death documents, death certificates, whatever the

local jurisdiction requires. An ordinary or a hospital pathologist could certainly do that work, and frequently they do, if deputized for that purpose, but the focus is different; cause and manner of death determination, forensic, diagnostic, basically medical conditions by a hospital or general pathologist.

Q. And there's nothing that would have prevented you from taking those boards; right?

A. No, absolutely not, just my decision not to spend an additional year of training to do it.

Q. Okay. And you are not a board certified forensic neuropathologist, neither; are you?

A. There is no such board. I'm about as qualified, I guess, as is possible, but forensic neuropathology is not -- the American Board does not have a board certification for that.

Q. Are you a board certified ophthalmologist?

A. No.

Q. So, you don't have the qualifications to look into someone's eyes and diagnose them; correct?

A. Probably with an ophthalmoscope, no; a microscopic slide of the eye, probably, I am, yes.

Q. Have you ever looked into someone's eyes and diagnosed them?

A. Excuse me?

Q. Have you ever looked into a live person's eyes and diagnosed them?

A. Sure. When I was a medical student, I enjoyed ophthalmology a lot and took an extra rotation, actually, in doing that, but not since.

Q. Okay. So, it would be fair to say that it's been 45 years since you have done that, then?

A. No. That's not my field of expertise.

Q. So, fair to say it's been 45 years since you have done that?

A. Yes.

Q. And you are not a board certified radiologist; correct?

A. What kind?

Q. A board certified radiologist?

A. No, no.

Q. And you are not a neurosurgeon?

A. No.

Q. And you are not a certified pediatrician?

A. No, I'm not.

Q. And have you ever been declared an expert in the area of pediatrics?

A. No.

Q. And did you know there's going to be a board certification for pediatric child abuse, the first test --

A. I'm aware that there is a certification, either in progress or about to be done. There is by -- I think the American Academy of Pediatrics, but I'm not sure.

Q. And the first test is going to be this November. Did you know that?

A. It is what?

Q. It is going to be this November. Did you know that?

A. I knew it was either on now or going to be.

Q. You are not going to sit for that test?

A. I certainly would not, no.

Q. And you are not one who specializes in infant neuropathology; are you?

A. It's part of my training and experience. I'm certainly qualified to do that, and I have.

Q. Okay. Well, have you ever treated a live child for infant neuropathology?

A. That I would be involved in dealing with live children? In the context of going to the operating room while they are alive, being operated on and giving diagnosis for whatever the surgeon took out, sure.

Q. When is the last time you did that?

A. Probably about four years ago.

Q. And have you ever had a live child as a patient?

A. My kids. That's about it.

Q. So, other than your children, would it be fair to say

you have never treated a live child?

A. No, no. I have never done that, except as a student, and haven't done so since.

Q. And you graduated medical school in 1964; right?

A. That's right.

Q. So, it's been 45 years since you've treated a live child, other than a member of your own family?

A. That's fair to say, yes.

Q. And you have never worked on a trauma unit, where children come in after being in car accidents or with head injuries; have you?

A. I did as a student working in the pediatric emergency room, or whatever they called it at the time. There were children that would come in from accidents and, presumably, other causes that I saw.

Q. And when was that?

A. That would be probably 1964, the last year of my medical school.

Q. So, it would be fair to say that the last time you worked on a trauma unit with children was 45 years ago?

A. Yes. That's fair.

Q. And have you ever admitted a child into a hospital?

A. No.

Q. Have you ever admitted any patient into the hospital?

A. Yes.

Q. And when was the last time you have done that?

A. When I was a pathology resident in Denver, for a period of time, my paycheck came from the Veteran's Administration, and I had to stand admitting officer duties there once every few months.

Q. What year was that?

A. Oh, goodness. That would be anywhere from 1964 to 1967, and there might be people that would come in on my watch that I would admit to the hospital under those circumstances. I wouldn't treat them.

Q. So, taking 1967, it would be 42 years, then, since you've done that?

A. Right.

Q. And would you agree with me that you are not a treatment provider?

A. I am not a treating physician, no, never have been.

Q. It's not your job to treat children with existing subdural hematomas; correct?

A. No, it's not.

Q. And, in fact, you have never treated an infant with existing subdural hematoma; have you?

A. I don't think that I have.

Q. You consult on autopsies; correct?

A. My interaction with pediatric disease would be by way of surgical specimens and an autopsy circumstance.

Q. So, that would be a consulting position; correct?

A. I suppose so, although I would have full -- I would generate an autopsy report and, in a sense, the buck would stop with me, but I could be a consultant, sure.

Q. Well, you would generate an autopsy report on that one specific area you looked at; correct?

A. That's correct.

Q. Okay. Not on the autopsy of the entire body?

A. Oh, I could do it for the entire autopsy, sure. I have done that many times.

Q. Okay. When was the last time you did that?

A. I don't know. When I was at Children's Memorial Hospital from, say, 1982 to '85, I frequently supervised the autopsy service, and senior staff people, such as myself, rarely do the autopsies. We supervise the residents who do them, and I don't know how many I was involved with.

Q. Okay. So, fair to say it's been about 24 years since you performed an entire autopsy?

A. No. That's not true. The last autopsy I was involved with of a general character was probably five years ago, and I happen to be in New Zealand, and a colleague of mine was on call, and we did a case together.

Q. Did you do the entire autopsy?

A. Yes. I was doing parts. He did part and I did part.

Q. Who signed the death certificate?

A. Not me, the other -- the pathologist who was deputized to do that, Dr. David Taylor.

Q. So, not being a certified forensic pathologist, it's not really in your job description to sign the death certificate that determines the cause of death?

A. Generally not.

Q. And during the course of your career, how many full autopsies, meaning from start to finish, head to toe, did you do determining the cause and manner of death?

A. Maybe half a dozen or so, where that was the issue, and I was authorized, deputized to generate that death certificate.

Q. So, fair to say about six over the course of your career?

A. Something like that.

Q. And one of those was someone who was executed; correct?

A. Yes. There was a judicial execution in Colorado some years back, and I was the pathologist of record for that.

Q. So, not too much mystery about the cause of death there; fair to say?

A. No, there was not.

Q. Okay. Have you ever performed a full head to toe autopsy on a child?

A. Sure.

Q. Okay. And when was that?

A. In the course of my 20, 30 some years as an academic pathologist. We did it in my residency. Pediatric autopsies were part of the work when I became a staff person in Chicago. Most of the pediatric autopsies were done at the Children's Hospital. When I became the neuropathologist there, I did some full autopsies myself there; more often than not, with a resident or supervising them.

Q. Have you ever signed a death certificate for a child?

A. I doubt that I have. I don't think so.

Q. And in your 11 years as assistant medical examiner, did you ever sign a death certificate during that period of time?

A. No. I was the secondary pathologist under those circumstances assisting the coroner's pathologist or M.E.'s pathologist.

Q. So, for 11 years, would it be fair to say that the primary part of your duty was to come in one or two days a week and look at slides of brains or portions of brains?

A. In terms of the forensic service, I would come in part of a day, a week, to do that at the Cook County Medical Examiner's Office. As a part of my other job, whatever the caseload was; I might be in the autopsy room every day. It might be a week or more, would separate that.

Q. Would it be fair to say you weren't doing head to toe

autopsies in determining the cause of death and signing death certificates?

A. That's right. I already indicated, functioning as the coroner's physician or deputized, I didn't have occasion to do that. I'm perfectly qualified to do so, but the occasions only arose about a half dozen times or so.

Q. And when was the last time that you prepared or conducted an autopsy as a clinician, not being related to being retained as an expert on a particular case?

A. While I was -- when I was still doing hospital practice, which has been about four years or so ago; then there would be no retention. I would be the hospital pathologist, and I would generate a report. That was that. Ever since then, whenever autopsies would occur, most often, it would be in a consultative role.

Q. Okay. So, when you say that your current job now, since you retired from the hospital -- correct me if I'm wrong. But I believe you said to Ms. Effman that your current job now may involve an autopsy from time to time?

A. Occasionally.

Q. Has it involved one in your job as a consultant?

A. Sure.

Q. A full autopsy?

A. Sure.

Q. And when was the last time you did that as a

consultant?

A. Oh, boy, that would be probably five or six years ago. There was a period of time where a number of exhumation autopsies needed to be done, and I did them. I think that would be the most recent context.

Q. So, since you have retired from your job and become a consultant, it's fair to say you haven't done any full autopsies; correct?

A. No. I have no facility to do them. I could, but I haven't.

Q. Okay. And even with the exhumation project that you worked on, is it accurate to say you have only done about a dozen full head to toe autopsies over the course of your career?

A. No. I have done hundreds of autopsies, full, complete autopsies and generated the reports.

Q. And did you sign the death certificate?

A. No.

Q. Did you determine the cause and manner of death in the head to toe autopsy?

A. I determined the medical cause of death. Usually, under those circumstances in hospital, the physician of record would be signing the death certificate. The signing of the death certificate by the hospital pathologist may occur, but it usually doesn't. Somebody else does that.

Q. Doctor, do you recall testifying in a case, the People of the State of California versus Ronnie Morinda (phonetic) in 2002?

A. What's the last name of the case?

Q. Morinda?

A. I remember the name, but I don't remember the case.

Q. The defense attorney would have been a John May?

A. May was the defense attorney. Okay.

Q. And if I told you that, in that case, you were asked by the prosecuting attorney, "I'm distinguishing between looking at the slides and actually doing the full forensic autopsy. I understand your answer to be about five or six." And you said, "That's probably true. The entire -- doing the body and everything and being responsible for the cause and manner of death. That's true." Would you disagree with that?

A. No. That's what I thought I have been answering before.

Q. So, doing the full forensic autopsy, not looking at slides, looking at the body and determining the cause of death, you have done about five or six. Is that correct?

A. Where I was the guy who signed the death certificate, yes.

Q. Well, you weren't talking about death certificates here; were you? You were talking about -- he was distinguishing between looking at slides and actually doing the

full forensic autopsy, and your answer was five or six. Is that correct?

A. Yes, to determine the cause and manner of death, correct.

Q. And for the most part now, Doctor, would it be fair to say that the majority of your work is looking at slides of brains or portions of cutting of brains?

A. In current practice, yes. I don't look at that many brain specimens any more. It would be slides, photographs, documents and so forth.

Q. And you are not there when the actual autopsy is performed; correct?

A. Most often not.

Q. And you are not actually doing any of the cuttings yourself. Is that correct?

A. That's correct.

MS. BOOK: Thank you, Your Honor.

THE COURT: Ms. Effman, you may proceed.

MS. EFFMAN: Thank you, Judge.

DIRECT EXAMINATION

BY MS. EFFMAN: (Continuing)

Q. Doctor, based on your review of the records and materials in this case, do you have an opinion, to a reasonabl degree of medical certainty, as to the prognosis for this chil when he arrived at Samaritan Hospital on the morning of

September 21, 2008?

A. Yes.

Q. And what is your prognosis? What's your opinion as to the prognosis for this child?

A. Given what emerged from laboratory studies and other studies, it would be grave. It would be very, very serious.

Q. And what do you base that opinion on?

A. The opinion is based on a number of facts that emerged. The child was shown to have streptococcus bacteria in his blood. That's a very serious finding. At autopsy, it became evident that this child had meningitis, had pus collections over an older fluid collection in the brain, had abscesses or cellulitis - that's a technical term - of bacterial infection in the soft tissues around the eye or eyes. Those are -- and then, of course, pneumonia with -- most likely due to the pneumococcal organism. This is a disseminated fulminant form of bacterial infection which has an extremely high mortality rate once it's recognized.

Q. Doctor, what, if any, health problems did the Thomas baby or [redacted] as the records are entitled, have at Samaritan Hospital?

A. Well, upon -- you know, this is like peeling an onion. You take the first layer off and you see what's there, and as more studies come in, you get a fuller picture. It was quite clear that this child was in terrible shape coming into

the hospital, comatose, not breathing with, ultimately, bacteria in the blood, shock, basically, low blood pressure, a number of other findings. And, so, this child was desperately ill, and then it turns out that there's other things going on; namely, this child has bilateral fluid collections over the brain that are chronic and go back a very long time. And, eventually, the child was found to have hemorrhage in the retina of the eye and other things, but it would be -- the general state of shock, largely due to bacterial infection, played over the fact that this child has pretty large fluid collections of material over the brain, which is a stressful situation at best.

Q. Now, Doctor, what is the significance of a child having a blood pressure in the 50's, dropping into the 40's at Samaritan Hospital?

A. It's shock.

Q. And Doctor, what is the significance of having a white blood cell count of a thousand that drops to 500 at Albany Medical Center?

A. That is -- in the context of this case, says, basically, the body is being overwhelmed by an infection that the bone marrow can't respond to any more. The white blood cells are being mobilized and being killed someplace. They are being consumed. So, this is a very serious turn of events.

Q. What is the significance of having a platelet count

at Samaritan Hospital of 115,000 that thereafter drops to 44,000 and 29,000 at Albany Medical Center?

A. This is what I would call a consumptive coagulopathy. In other words -- it's a lot of words, but it means that these blood platelets are being consumed in making blood clots someplace, and they are being taken out of the blood, and that is a situation that is a prelude or a part of the general picture of something called coagulopathy, meaning that there's a teeter-totter, if I can be permitted to say, of clotting and non-clotting in the blood - all of us - and when this teeter-totter tips one way down, and clotting is occurring for whatever reasons somewhere in the body, then what happens is that this clotting process may consume the products that make blood clots, rendering the blood then thin and able to bleed in various places that it would not normally do that.

Q. Would that be called coagulopathy, Doctor?

A. Yes. There's a number of terms for this. Sometimes the term disseminated intravascular coagulation, or DIC, is used. I prefer the broader term, coagulopathy, because it isn't specific. It just says this equilibrium is out of equilibrium, and it can mean various things and have various consequences.

Q. And with coagulopathy, how serious of a problem is that, if someone has problems with blood clotting?

A. The consequences of a coagulopathy? Is that what you

want to know?

Q. Yes, Doctor.

A. Well, many times, this process may be proceeding and, outwardly, it's not evident. It becomes evident sometimes when you have bleeding around the intravenous sites, trivial wounds, bruises appear on the body that have no traumatic basis for them, apparently, bleeding in the gastrointestinal tract, bleeding into various organs, sometimes bleeding in the brain, bleeding in the eye, and this can become fulminant.

Another problem that can happen is that the coagulation of this blood can occur in blood vessels, in which case you clog them up. In the case of the brain, if you have a clot which is developing in veins that are supposed to be draining blood away from the brain, then you have the situation of blood coming into the brain but no way for it to get out, in which case bleeding and the rupture of blood vessels into the brain and its coverings can occur. So, this can be something that you don't suspect right away, and it can be like Niagara Falls; that it becomes a cascade to ultimately bring about the death of an individual.

Q. And Doctor, what's the significance of a finding of a temperature of 97.2 at Samaritan Hospital that drops down to 94 degrees?

A. That's a grave finding if it's correct. In other words, you first have to ask the question how was that

measured, and if somebody just put a thermometer in the armpit, well that's a notoriously inaccurate way to do it. But if it's a bona fide way of measuring the temperature, it may mean, basically, you are witnessing a person in the process of dying. Their regulatory mechanisms can't keep body temperature up, and they are basically failing.

Q. What is the significance of having a blood sugar of 50, Doctor, for a four-month-old infant?

A. This, again, may be a measure of the failing body. You always have to say did the child get some drug that is depressing the glucose level, but again, it's probably one more indicator that the systems are breaking down and death is approaching.

Q. Doctor, in the records of Albany Medical Center, there's an indication that the child was suffering from a condition called pancytopenia. What is the significance of that?

A. Well, pancytopenia means all the blood cell elements are depressed; while we know the white cells were, because the count showed that. Part of the platelet count might mean that they are being consumed and/or the blood, the bone marrow, is being stressed so much that it's not making the precursor cells that make platelets. So, it's a very dire situation that may have many causes but, again, it's part of this -- you are witnessing the decay and fragmentation of an organism here.

Q. What's the significance of the finding of the positive blood culture that was taken immediately upon this child's arrival at the Samaritan Hospital and it came back positive, Doctor, for streptococcus pneumoniae?

A. Bad situation. You have bugs in the blood or a bacteria in the blood, and that is a very serious, potentially life-threatening situation.

Q. What about the significance of notations in records at Samaritan Hospital and Albany Medical Center of symptoms of acute respiratory distress syndrome?

A. Again, this can be a symptom or an indicator of shock, not enough blood perfusing the lungs. The lungs don't like it, and they begin to shut down. So, respiratory distress is part of the multiorgan failure kind of scenario that happens when people are septic and in shock, and it's a dreaded complication, because it's just one more thing that the clinician might be trying to have to play catch-up to try to save this baby's life.

Q. Can you tell the jury, what is septic shock?

A. Sure. Basically, when you have bacteria in the blood, bacteria are liberating toxins and cause death of tissue. The release of these -- I guess you could say it's a little bit like smoke from a fire. It's toxic. It inhibits various bodily functions, interferes with cardiovascular activity and the maintenance of blood pressure, and it's a dir

situation.

Q. Is there any association or connection between septic shock and coagulopathy?

A. Yes.

Q. Would you please tell the jury about that?

A. One of the things that can upset this teeter-totter of clotting versus not clotting and this balance is the presence of bacterial toxins, high temperature and the products of bacterial infection, which is dead tissue and the fragments of that that are being absorbed in the body. That can produce these problems.

Q. What happens when coagulopathy takes place or occurs?

A. Pardon me?

Q. What happens when coagulopathy takes place?

A. Well, then, as I say, you first consume the products of coagulation, and that might end up with blood clots in blood vessels where you don't want them, in the brain and elsewhere, and then you end up with bleeding, and the bleeding can be a little bit, a lot, everywhere, nowhere.

Q. And when you have problems with coagulopathy, can that bleeding be widespread throughout the body?

A. Yes, it can.

Q. In fact, can you bleed anywhere in your body when you have a problem with coagulopathy?

A. That's true. Sometimes, in some cases, you end up

with somebody that basically turns purple. Their skin is blotchy and covered with lots of places where little blood clots and bleeding have occurred in the skin. Sometimes that involves internal organs. If it involves the heart and major organs, then they shut down and that could kill you.

Q. Did you find any evidence in the records, in the autopsy report, of this child having problems with coagulopathy?

A. Yes. It's documented in the medical chart. The child was treated for it, or attempted to be treated for it, and it's in the autopsy, too.

Q. And what treatment was rendered for this particular problem?

A. An attempt is made to try to provide the absent coagulation proteins and things like that. One way they do that is to take plasma, blood plasma from a donor, get rid of the red blood cells and give them all of the things that are in the serum and plasma to redress that, and that was attempted.

Q. What evidence did you find of this child -- where is there evidence that this child had a problem with coagulopathy based upon your review of the records and the autopsy report?

A. Well, the laboratory studies clearly showed a number of measures of it. There are a half dozen laboratory studies that can do this platelet count for one, something called the prothrombin time, or PT or PTT. There's another computer

variable called INR that is done, and then there are a bunch of other studies that can measure the level of blood proteins that provide coagulation, like fibrinogen. You can also measure the products of degradation of blood clots called fibrin split products and other things, and I don't remember how many of those were done, but the term coagulopathy was scattered throughout the medical record, and the child was treated for that.

Q. Turning your attention the autopsy report, is there any evidence of coagulopathy in the autopsy report?

A. Sure. I could see evidence of coagulopathy in some slides of the brain, where some small blood vessels contained clots inside the blood vessels and bleeding surrounding those vessels. The -- there was hemorrhage in the testicles of this baby that was described by the autopsy pathologist. There would be no reason for it to be there, other than that. So, I think there's plenty of evidence for not only the clinical diagnosis, in-life diagnosis of coagulopathy, but the confirmation of it at autopsy.

Q. Did the autopsy reveal whether or not there was any hemorrhage in the heart or myocardium?

A. Yes, there was.

Q. Okay. And would that also be consistent with coagulopathy?

A. Coagulopathy and/or sepsis. There was actually death

of heart cells and some scarring there related to that and reaction to that. So, it could be coagulopathy now and, perhaps, some time in the past, as well as some products of the bacteria in the blood.

Q. And how does keeping someone alive, such as this baby on a ventilator -- does coagulopathy continue to occur while the child is on a ventilator?

A. Sure. A life support would include ventilator and other drugs to keep the blood pressure up, all of which the child received, and this can have some effects, too. It basically keeps, quote, the body alive. The brain may be already considered dead by that point, but that will allow, if a pneumonia is present, for it to continue; other life processes to continue until those supports are stopped.

Q. So, until the ventilator is turned off, if a child has a coagulopathy problem, that could continue to occur; you could have fresh bleeding because of coagulopathy until the ventilator is turned off?

A. Probably not. When the heart action stops, the machines are pulled off and unplugged; life ceases and those processes are stopped.

Q. Do you have an opinion, to a reasonable degree of medical certainty, as to the cause of recent bleeding in the testes, myocardium, brain and retina?

A. Yes.

Q. What is your opinion, Doctor?

A. Well, the testes and myocardia ones probably are associated with coagulopathy. The hemorrhages in the retina have a better explanation. I think they could have been added to by the coagulopathy, but the better explanation is increased intracranial pressure.

Q. Now, these conditions we talked about previously, the low blood pressure, the low body temperature, the low blood sugar and pancytopenia and the low white blood cell count and platelets, are those all conditions consistent with overwhelming sepsis, septic shock?

A. Yes.

Q. Doctor, can leukopenia, the low white blood cell count, pancytopenia and hypoglycemia, the low blood sugar -- do those have anything to do with head trauma?

A. I don't know how I could connect the two. My answer would be no.

Q. Doctor, based on your review of the records, materials, education and experience, having done over 20,000 brain autopsies, and your work at the Cook County Medical Examiner's Office, among your work at other hospitals, do you have an opinion to a reasonable degree of medical certainty as to the cause of death of the [redacted] baby?

A. Yes.

Q. And what is your opinion?

A. I would say the effects of bacterial infection due to strep pneumoniae, the streptococcal bacteria, in the form of sepsis, bacterial infection of the surfaces of the brain, abscesses and cellulitis within the orbital tissues around the eye, and the complications of coagulopathy on top of that.

Q. And would that sepsis be pneumococcal sepsis based on the bacteria that was found in the child's body?

A. They were found -- the organisms were recovered from the blood. I examined tissue slides of all of the areas. I think I had five or six slides of brain, the subdural hematoma membranes and tissues of the eye. I found strep in all of those by use of the gram stain.

Q. Doctor, do you have an opinion, with a reasonable degree of medical certainty, as to the nature of the subdural hematoma described in the autopsy report?

A. I do.

Q. And what is your opinion, Doctor?

A. These are -- perhaps one could use the term chronic subdural hematoma. There are other terms, chronic fluid collections, subdural hygroma. There are a bunch of terms that describe the situation of these fluid collections over this child's brain that had been chronic; and by chronic, I mean present for weeks and months, possibly going back to birth.

Q. Are you able to age the chronic subdural based on microscopic sections, Doctor?

A. Yes, we can.

Q. And we have those microscopic sections here today on action slide. We also have them on a CD; correct?

A. I do.

Q. Would it be helpful to come down here and demonstrate for the jury how you can age the microscopic sections?

A. Sure, and the context in which we would do that.

Q. Yes, Doctor.

A. I can do that.

Q. Come on down, please.

A. I think what I will do, if it's permitted, is sort of stand beside here, and then I can use my cursor to demonstrate.

Q. Sure, Doctor.

A. Shall I proceed?

Q. Please, Doctor.

A. What we have here on the screen are two pieces of film, basically, from the CT scan done a few hours after admission of this child to the hospital on 9/21, and the one on the left is a -- basically a band saw section electronically through the top of the child's head, down maybe an inch or so. And what we have here are -- if my cursor works. This is -- where my arrow is is the front, above the ears; would be here and there. The back of the head is back here (indicating). What we see is something in between the two cerebral hemispheres. That's called falx, F-A-L-X. That's part of the

dura that falls in between the two cerebral hemispheres. It has some white density on it, and that white density is either blood that is in the falx itself or a very thin layer. White would be how blood would appear. The skull has -- the skull is white. Because of the calcium that is in there, it absorbs the x-ray. You can't see the soft tissues of the head. What we see here, this is the right cerebral hemisphere. It's reversed; that's the way the radiologists read it. This is the right cerebral hemisphere. This is the left cerebral hemisphere, and you can see that it doesn't fill the skull completely. And what is over the brain is a collection of gray material here, and a little darker material on the left side. This particular side is watery fluid that may have a little bit of blood pigment in it. I would probably describe it as straw-colored fluid, maybe it has a slight brownish tint if you could have it in front of you.

On the right cerebral hemisphere, there's a little more gray there, which means there's probably a little more blood pigment that is mixed in with this fluid that is there. The other thing that one can see, if I can get my cursor back, is there are little strings and things that seem to traverse these spaces, and this is the component that could either be veins that are connecting this outer part of this fluid collection to the surface of the brain or represents septa of connective tissue in membranous components here.

If we go to the next panel, which is a cut farther down in the brain - again, front of the brain up here, the rear of the brain back here, the right side and then the left side (indicating - we can still see the falx, and it's only that much right now, a little bit of white color there. We go to the back part, and there's much more white color, and maybe a little bit more of white material that's puddled back here in the back part of the head in this fluid collection. If you want to see a comparison of what cerebrospinal fluid looks like, which is clear water with a little sugar and salt in it, that's how it should look, pretty dark black. So, anything less than that indicates that there's something distended in this fluid.

So, just simply looking at the CT scans alone, you can say these are fluid collections on both sides of the brain, which there's really a rather minimal amount of recent blood. The most evident would be back here, kind of puddling in the occipital lobe on the right-hand-side; but if characterized, these lesions, they -- acute bleeding is not a major part of it.

Q. Fair to say, Doctor, there's very little acute bleeding that you noticed on the CT scan?

A. There is recent bleeding. I don't know how long it had been there, at least back here (indicating). This is probably about the most acute bleeding there is. You can see

how comparatively little there is at that point. So, this would be a chronic fluid collection, subdural hematoma, if you want to call it that, with some small amount of acute bleeding in it. Now, how long would it take for -- if you started out with an acute subdural hematoma, where all this black space was white, fresh blood, probably many weeks to get to this, and then it tapers off. Some of these fluid collections could be present for years, and they all have a little element of blood in them for some reason.

Q. Can you tell the jury, what is your experience in interpreting CT scans and how long you have been interpreting them for, Doctor?

A. Sure. I'm privileged to be part of a generation where lots of wondrous things happen, one of them the discovery of the CT scanner and the MR scanner. These happened while I was in hospital practice, and Children's Memorial and the Northwestern Memorial Hospital received -- I don't remember what year it was that we got our first CT scanner, but the radiologists who were charged with the responsibility of reading these new images, basically, didn't know how to do it. The appearance of the brain axis is how I cut the brain at autopsy. So, these radiologists came down to the autopsy room. We would have a case. They would bring their scans along with them, and there would be the brain. And they would say, "Well, that's what it looks like in my film. Let's see what it looks

like in the brain."

So, it was a matter of immediate correlation between what the pathology was and what they were seeing on their images. So, in a sense, the neuroradiologist and I learned to read these things together, and that interplay between radiology and pathology continued as long as I was at those institutions. So, consequently, I grew up with this, with these techniques.

And later, when I was doing primarily surgical neuropathology at the Chicago Institute of Neurosurgery, I would go to the OR. There are the films on the wall. I can see the patient right there. There was hardly a day that went by that I didn't look at some form of cranial imaging, along with the surgeons or with the radiologists. So, I have been doing this as long as the technology has been around.

Q. Thank you, Doctor. Do you have an image on your disc which would demonstrate or show the microscopic section of the chronic subdural you described here today?

A. Yes. One of the things that one would want to do when you do the autopsy, when you open the skull and take the brain out, this fluid flows away. So, you don't have that image any more. What you have left behind are elements of membranous tissue back here, and you want to make sections of that to make a microscopic slide, which is exactly what we did, and here is a depiction of this.

Let's start down here. This is some recent blood that is red, and the red blood cells have different colors to them, indicating that this is blood that's been in this particular location up to, I don't know, five days, a week.

Q. Can you use a pointer, please, to -- starting back to your first description.

A. This area right in here (indicating) --

TRIAL JUROR: We can't see.

MS. EFFMAN: Judge, do we have a pointer or any kind of device?

THE COURT: I don't know that we have -- maybe just using a pen or something, Doctor, to actually show on the screen.

A. Okay. This part here is a blood clot, and it has red blood cells that are clumped, also some watery fluid. Some of those red blood cells are preserved, which means that they can be about two to three days old. Those undergoing color changes are probably in the order of three, five, six days old from the time of death, meaning that some of this blood could have been still coming in there while this child was hospitalized.

Beneath that, we have another layer. I don't know how you want to define these things, but if you want to look at it, we have probably one, two, three, four, five, six, maybe seven or eight layers here. Now, these layers are -- represent the body's attempt to heal this subdural process. The skull

would be up here not shown. And what is in here? We see lots of brown things. Those are blood vessels, new blood vessels that are formed to try to carry away this debris and cells that are there. And the reasons we have layers like this is because there have been multiple episodes of bleeding. It would be like a place that had six earthquakes in a row. And the aging and dating of each one of these membranes, there's a time frame. It probably takes several weeks to get one good layer going. And then, if there was another episode of bleeding on top of that, then the process starts all over again.

So, this is -- represents morphology, I guess, if you want; and if you add up all of these time frames of weeks and months here, this process could easily go back to the time of birth.

Now, one last thing that I want to mention is this layer that's up here at the top (indicating) is filled with dead cells, or another not very elegant term is pus, P-U-S, dead white blood cells, organisms, debris and so forth. So, this child has what would be called a subdural or intradural empyema. That is the collection of pus and dead tissue under the skull just on top of the dura where this was sampled.

Q. And do you have an opinion, to a reasonable degree of medical certainty, as to the cause of the pus?

A. It probably got there by -- well, there's two methods - hematogenous - in other words, there's bugs in the

blood that colonized this particular area because it's damaged and set up housekeeping there, or there is a direct extension, for example, from, say, a sinus near this. There's a sinus infection, and it broke through and eroded through the bone into the dural space and set up housekeeping there. I don't know which one operated.

Q. And does pus have any connection to trauma, Doctor?

A. No. The only circumstance in this kind of case would be if there had been a skull fracture that had passed through one of the sinuses at the base of the skull releasing contaminated material. We don't have any evidence of that.

Q. Please proceed, Doctor.

A. This is a microscopic slide taken in the brain. These larger blue things are nerve cells. This is a tangle of capillaries that are in the cortex or in the surface of the brain. The white matter is down here. There's lots of white holes. That's edema. There's where water has come into the brain. And then we have these vessels which are distended with red blood cells and contain blood flow and inflammation surrounding them.

So, I think this is an example of intravascular coagulation that happened before this baby died, and maybe before his hospitalization, indicating the circumstances that were going on in this kid.

Q. And is that causally connected to overwhelming sepsis

and septic shock, Doctor?

A. I believe that's the pathway that got us to this place. I should point out, also, if I moved this field up and had taken a picture of the surface of the brain, I would have found inflammatory cells there and with the gram stained bacteria.

Q. Doctor, can you explain to the jury what's depicted on this particular slide?

A. Okay. On the left panel, what we have is a section of tissue in the fat and muscle area surrounding the eye. That is -- the eye is, of course, enclosed in bone, and that's what we call the orbit, and there's soft tissues surrounding the eye, and that's where this section has been made. There are lots of blood vessels, which are normally present. Many of them are thrombosed, that is clotting, and have inflammation in the wall. We have this area of necrosis, where tissue has died, and I had a gram stain, or had one made of this tissue. And what I'm pointing out here, these dark big globs here, are the nuclei of inflammatory cells. All the little dark dots, like grains of rice all over the place, are the streptococcal bacteria, gram-positive bacteria that are in this dead and dying tissue around the eye.

Q. Did you request that certain slides from the autopsy be gram stained for your review of this case?

A. I did.

Q. Doctor, can you tell the jury, what is gram staining?

A. What you basically do -- and you can do it with a smear; in other words, a cotton swab of some secretion somewhere, put it out under a glass slide, and then stain it with these reagents called the gram stain, and look at it under a microscope, and they will -- these reagents will stain certain bacteria dark like this. Typical would be streptococcus, staphylococcus and some others. And then if it didn't, they would have a pink color, like the bacteria that inhabits the gut, like E. coli. Those germs will have a pink color, so they are gram negative. And the form, or the way these two dots are together, that's typical for streptococcus and particularly strep pneumoniae.

Q. Why is it important to gram stain a body slide?

A. It tells you that there's bugs there. I mean, if you look at this, you say there has to be something there because of the cellular reaction and the way the tissue is dead. Although you have a positive culture, it's not the same as saying, "There it is. We have closed the loop on it."

Q. And did you gram stain any other slides, besides the slide of the orbital tissues, as we talked about here?

A. Again, I wanted to be sure. Are there bugs in the subarachnoid space over the brain? Yes. Are there bugs in this tissue around the eye? Yes. There should be no doubt as to what the cause of death is.

Q. Basically, all the gram staining you did showed that the brain and the area behind the orbital tissues had evidence of this bacteria, streptococcus pneumoniae?

A. Right.

Q. What is the significance of that?

A. It just closes the loop on the reason. Why is this necrotic? Why are the inflammatory cells there? It's there because there's bugs, and it tells you, when you have this kind of perfusion and distribution of a serious infectious organism, that's -- it's an advanced and disseminated disease. That's very, very, very serious. There's the cause of death sitting right there looking at you.

Q. Doctor, going back to the previous slide, please, for a moment. You talked about there was evidence of clotting problems. Can you point for the jury with the pointer or the pen where --

A. These blood vessels are distended with blood clots, and there's reaction in the wall of the blood vessel, and that would be typical for coagulopathy and so forth.

Q. And that's consistent with coagulopathy related to sepsis or overwhelming sepsis?

A. Sure. You have sepsis here and you've got it right next door. You've got the whole story right there.

Q. Can you go back a moment to the two prior slides with the chronic subdural hematoma? Thank you, Doctor. Based on

the number of layers - you testified seven or eight layers - do you have an opinion, to a reasonable degree of medical certainty, as to the age of this chronic subdural?

A. Yes. In its totality -- I mean, we have to start from the surface down here and move down, but the oldest material probably goes back -- this child is only four months old, and it certainly could go into that time frame; not all of this. Maybe we are looking at a four-month-old, a three-month-old, a one-month-old, a two-week-old, that kind of thing (indicating).

Q. And Doctor, in terms of risk factors, did you review the mother's obstetrical records in this case to determine whether she had any risk factors during pregnancy and during childbirth?

A. Yes. There were a number. This child -- when we take a look at children that have bleeding in the dura and bleeding in the brain and then go back, there have been a number of studies that have looked at that. What factors are around that could correlate with those things? And there's a bunch of them. This child had at least a half dozen of these; being early delivery, twins, the presence of toxemia during the pregnancy in the mother. The presence of premature rupture of membranes is potential for bacterial infection.

Let me think. They go on, but these would be all things that could put stress upon the baby and produce bleeding

in the brain in conjunction with birth.

Q. Would meconium stained membranes - that is, a baby having a bowel movement in utero - would that be a pregnancy or birth complication factor?

A. It's an indicator of fetal distress, and I suppose just any indicator of fetal distress would be another box that you would check off on that risk profile.

Q. Would preeclampsia be a risk factor?

A. Yes.

Q. High blood pressure, would that be a factor?

A. Well, that's part of the preeclampsia complication, high blood pressure in the mom.

Q. What about obesity on the part of the mother?

A. That's another one. Overweight is something that adds risk. I'm not exactly sure where in the alphabet it comes, but it's there.

Q. And what about breach presentation for vaginal delivery?

A. That's another one. If the presentation is anything other than the usual head down situation, if there's any problem with delivery, and there often is with twins, that's another risk factor.

Q. What about use of forceps during delivery? Would that be a birth complication factor?

A. True, forceps, anything else that indicates that it

was difficult to get the babies out, or they just popped out. There's good news and bad news. A precipitous delivery is also connected with brain bleeding and so forth.

Q. What about a bacterial diagnosis of a vaginal infection of the mother at the time of delivery? Would that be a risk factor?

A. Absolutely.

Q. What about the fact that one child, Twin A, was born with pulmonary stenosis? Does that have any host in the risk factors of the birth process?

A. That departs a little bit. I'm not sure what role that would particularly play.

Q. What percentage of normal pregnancies experience intracranial bleeding during childbirth?

A. This has been studied. It used to be thought it was quite rare, a few percent. Now it turns out that normal, presumably normal vaginal deliveries, 25 to 40 percent or more may have some evidence of bleeding in the brain.

Q. And if you had any of these pregnancy or birth complications, Doctor, that we talked about, how does that impact, this 25 or 40 percent, the number you have given us that have babies that experience intracranial bleeding?

A. It would probably shift those babies further and further into the 25 to 40 percent rate. I don't know what the exact number correlations are, but that clearly increases the

risk for bleeding.

Q. Can you explain to the jury how bleeding can occur during childbirth?

A. Sure. The head has to conform to the anatomy of the birth canal; namely, it has to elongate. It has to move and twist and turn and so forth, although the -- birth is not for sissies. It's a traumatic process. And in the course of that, the intracranial structures have to be capable of moving and being stretched and strained, as well. And part of the problem with that is, with molding of the head, that the dura, especially near the back of the brain and the tentorium, it's called, may be stretched and produce bleeding in those locations.

Q. So, in terms of areas that you can have bleeding during childbirth, what would those areas be?

A. Well, it can occur anywhere in the dura, but classically, where all of the components of the dura come together, more or less, near the base of the skull and the cerebellum. The dura there is very vascular, and it experiences, from a mechanical point of view, more stresses placed upon it during birth than other areas, and it's reasonable, therefore, that blood does occur there, which it does.

Q. So, you can have bleeding anywhere in the dura as a result of childbirth?

A. You can, sure.

Q. And if you have bleeding in the dura, can that flow to the posterior fossa?

A. Well, once you have bleeding that goes into the subdural, quote, space, it's a potential space, but it can be actualized very easily. It can respond to gravity and can redistribute itself in different parts inside the head.

Q. And during your review of the autopsy report in this case, was there evidence that there was blood in the posterior fossa of this child?

A. Well, we can see it on the CT scan. There clearly was this process, an old one, with some recent bleeding back there, yes.

Q. Doctor, before I stop you there, do you have additional slides that you would like to demonstrate for the jury, Doctor?

A. Yes, this one.

Q. Can you describe for the jury what is pictured on this slide?

A. This is lung, section from the lung which shows virtually no air in it. It's all completely collapsed. And if you look - you can't really see it with this section here - there are acute inflammatory cells scattered through this and evidence of pneumonia, but this is primarily collapse of lung tissue, most likely because air didn't reach it through the

ventilator and the lungs didn't expand, at least where this section was taken.

Q. Can you describe for the jury what is depicted on this photograph?

A. This is the section of heart, some heart muscle more or less normally scattered around the side of it. In the center is a scar, where muscle fibers have been killed, and I'm not sure what did that. It's not recent. It's been repaired with scar tissue. It's like a little tiny heart attack, and that is present in this child's heart.

Q. Based on what's depicted there, Doctor, do you have any idea how long this scarring had been there?

A. Probably a month or months. So, something has been going on here. I don't know what caused that. It could be coagulopathy. It could be something else. I have no idea.

Q. Would that have any connection to pulmonary stenosis?

A. Whatever pulmonary stenosis was caused by. It could have been an intrauterine infection or something going on that caused that. It might have been responsible here. This is scar tissue that's left. I don't know what occurred before.

Q. Okay. Thank you, Doctor. There was one of the heart at the end?

A. Yes. It just shows that there's some areas of heart muscle damage. Muscle fibers that are dark and square indicate that this heart has been having to work harder. I don't know

how many of these scarred areas were there. If there was some element of pulmonary stenosis, the heart has to work harder to pump blood, and that is reflected in a nonspecific way in another section of the heart. So, this child came into this situation with a damaged heart for a variety of reasons, and that's the load this child has to deal with.

Q. You can take the stand again, Doctor, please. Doctor, you just touched upon earlier that you have experience in reading CAT scans and ultrasounds. How many years have you been interpreting these things?

A. Oh, a long, long time.

Q. Not to date your age, Doctor.

A. I'm 70 years old. But anyway, for 40 years or so.

Q. And as part of this case, did you have a chance to review an ultrasound from St. Mary's Hospital from May 14, 2008, approximately ten days after these children were born? I draw your attention to that, Doctor. Can you rule out the existence of a subdural hematoma based simply on that ultrasound?

A. No, I can't.

Q. And can you explain that position to the jury?

A. Ultrasound, it's a wonderful technology that seems to be getting better and better and better all the time. It's noninvasive. It doesn't produce radiation or damage anything, as far as we know, and it's a good way if you have worries

about bleeding or some process inside the head, especially with a baby, because the skull isn't very thick, you can do an ultrasound. But like any other sort of screening test, it's not as sensitive as other methods, and you can get false negatives, and I would say the incidence of false negative exams - that is, when there's really nothing there but you pick it up - is probably higher with an ultrasound than false positives. So, if you have a lesion that you can see with an ultrasound, it's probably there, and then you may want to do some other studies to define further what it is. So, a negative study, you cannot necessarily go home with a comfortable feeling that there's nothing there. Probably more likely than not, there's nothing there, but you can't be sure.

Q. And might a small amount of a bleed not appear on an ultrasound?

A. Yes. That happens. I have encountered that situation where, by extrapolating back, where there should have been something there, and then reviewing the studies -- sometimes there's technical reasons; the study wasn't very good or the technician didn't have the magic in the fingers to make things come out right. And by all rights, the study is negative, but there had to be something there, but it was below the level of detection of the instrument.

Q. Might there be any lag time in the appearance of a subdural hematoma such that it may not appear on an ultrasound

performed ten days after a premature birth of 33 weeks?

A. Yes. That doesn't mean the birth is the only thing that's going on. This child is trying to adapt to be a full newborn. Other things can occur. And who knows? A process may have begun after the ultrasound was taken. It's just -- you can certainly have processes that have a beginning but are small and minimal, I guess, that do evolve into something like what we see here in this child, and you see that all the time.

Q. And what's the most diagnostic way to -- I guess -- strike that. Is a CAT scan more -- a better way to take a look at the -- that particular area of the body?

A. Sure. A CT scan is a good technology. MR is better. The trick with these things is you get radiation from a CT scan, a lot more than you get from a chest film, and a developing brain is something you don't necessarily want to irradiate if you don't have to. So, consequently, there's a cost benefit. There are risk benefit equations you have to work on.

An MR, on the other hand, is much more expensive. You probably have to sedate the child in order to do that, and then you can really get information. But, you know, how badly do you need that information? Do you have reason to go there? Maybe not.

Q. Which is the least expensive means of doing the imaging?

A. Well, you make a pass at an ultrasound. It's relatively cheap. It's noninvasive. Who knows? It may show you something or it may not.

Q. Doctor, why might there be blood present subdurally on a child that's not picked up on an ultrasound ten days after birth?

A. Well, it's either thin, below the level of detection of the instrument, or the way the study was done, it didn't point the ultrasound to where the bleeding was, and we know that you don't get these membranes and reactions overnight. It takes time. So, something had to be in this kid's brain and dura at or about the time of birth, or shortly there afterwards, that then built on itself and rebled and bled and rebled again, and this rebleeding can be totally spontaneous, having nothing to do with anything else that's going on, and there you see the results of it.

Q. Doctor, taking you a step back to the blood in the posterior fossa we talked about earlier. We were told by other witnesses in this case that the ultrasound would not pick up blood in the posterior fossa, and the autopsy report that's now in evidence has evidence of blood in the posterior fossa. Can the subdural communicate to other areas of the dura?

A. Sure. I mean, it's not a space, but once you have blood in the so-called subdural compartment someplace, it can dissect and redistribute itself to other places.

Q. Would it be helpful to draw that for the jury, Doctor?

A. Oh, I don't know that I need to. I think that is excessively complicated.

Q. What happens to -- can you describe the healing process of a chronic subdural?

A. Okay. Well, the first thing is that you end up with blood in the subdural compartment, which shouldn't be there. The blood releases chemicals and products of degradation that call forth inflammatory cells that come out of the blood from other places there to gobble this stuff up and make it go away. Cells locally have chemical signals from the dying red blood cells to the scar. So, the whole idea is to wall off this bit of blood and make it go away. Well, the process of doing that is inefficient, it appears, and little capillaries grow into this evolving membrane, which is a few cell layers thick and then gradually increases. Those little capillaries will rupture, and there you go. You start the process over again.

So, there's incremental bleeding, so that you can never, in a way, ever catch up, and we see a litany of that right here in this picture. Frankly, I have never seen one with as many layers in it as that. Actually, if you want to take the cover of my book, you can see, in a sense, an example of what a really chronic subdural fluid collection with membranes looks like. There's an archeology there. And it's

the natural process of healing that goes awry that bleeds to some of these things.

Q. And Doctor, is rebleeding necessarily tied to a particular event or incident?

A. No.

Q. And what can cause a rebleeding of a chronic subdural hematoma?

A. Nothing you know about, or let's say that somewhere along the way the child became coagulopathic. Obviously, this is a site of injury and bleeding can occur and, therefore, you have added something to it. If the child became septic, you get the same issues. If there were an episode of head trauma, of whatever kind, these are delicate structures and they could bleed again. So, there's a whole list of processes that can lead to the rebleeding, but it's part of the natural disease process in trying to heal up a subdural hematoma that involves bleeding. That's been known for more than a hundred years in the literature.

Q. And can you have rebleeding without any movement of the body?

A. Most of the time, you have no idea what is producing the incremental rebleeding.

Q. Fair to say, anything and nothing can cause rebleeding?

A. Anything and nothing, right.

Q. And, certainly, a chronic subdural hematoma could rebleed without any trauma, Doctor; correct?

A. Absolutely.

Q. Can increased intracranial pressure from meningitis cause rebleeding in a chronic subdural?

A. That may be complicated. I'm not quite sure how I would draw the mechanism for doing that but, certainly, infection in the region of membranes like that could facilitate rebleeding.

Q. And, certainly, the infection you saw in the brain and eye of this child based on microscopic sections you gram stained, could those be things that could be connected to the rebleeding?

A. Yes.

Q. Can septic shock cause rebleeding?

A. Sure.

Q. Do you know if pulmonary stenosis can cause rebleeding?

A. I don't quite know how that would work. I would want to be conservative on that and say I don't know.

Q. Doctor, have you seen studies which connect CPR to rebleeding?

A. This has been controversial. There could be a reasonable mechanism for doing so, and it probably has occurred, but in terms of case reports that would tie

rebleeding in a subdural directly to CPR, I am unaware of one, but there could be.

Q. Doctor, based upon your 40 some years experience in medicine, being certified as a neuropathologist and anatomical pathologist since 1970, do you have an opinion, to a reasonable degree of medical certainty, whether -- can a subdural hematoma be caused by throwing a baby from shoulder height onto a mattress 17 inches from the ground?

A. My answer is probably not.

Q. Can you explain that to the jury, please?

A. Yes. In order to understand or probe into this issue, you've got to know what kind of forces are involved in a scenario like what you have described, and those scenarios have been modeled. I have seen them done. I have got copies of some of these studies done by a biomechanical engineer using dummies that are wired up to computers, in which drops and throws onto bed mattresses of one kind or another have been done. And it looks like the highest acceleration threshold might approach 40 times the force of gravity, more likely 20.

Q. And that would be doing so manually; correct?

A. Yes, 20 to 40 G's. Now, that would be like being in the elevator, or in a really fast car. As you accelerate, you experience some acceleration. Those would be fairly small ones. If you plop into a couch at your house at the end of the day exhausted, you will probably experience about ten times the

force of gravity as you get to your couch. That, in that general range, maybe twice of that or so, is what one could experience if they dropped onto a mattress from these heights. That's been measured.

Then we have to say, okay, what does 10 or 20 or 30 G's mean? Well, when one looks at injury scenarios for adults or children or other things, what are those numbers like? It looks like you have to start getting to a hundred times or more the force of gravity before you start getting subdural hematomas and brain injury and that sort of thing. So, we are not there.

Q. And have there -- there have been studies on that; correct, Doctor?

A. There have been studies. The notion that we know nothing about the injury thresholds in babies and children is not correct. A number of studies have been -- have come out as a result of design of the air bags. The first air bags were -- killed people; babies and children, in particular, which occasioned where do you put a kid in the car. Do you want to have an air bag in front of them or not? And they do have some threshold numbers. They are not like a cold experiment, where you take ten kids and do something horrible to them. You can't do that. But nature's experiments, nature's accidents do give us some insight as to what it is, and that is probably on the order of a hundred times the force of gravity to produce

subdurals, and actual brain injury, much more than that.

Q. Doctor, what's your background in pattern interpretation?

A. My background in what?

Q. In pattern interpretation or pattern recognition?

A. It's part of the training in pathology, and certainly around forensics, is that there are patterns of -- under the microscope, you can tell the difference between a Scotch plaid and a paisley, and then maybe even more sophisticated as you grow better. But on surface of the body, that's an important thing. For example, in injuries, if someone strikes a pattern surface, you may see a reflection of that in the bruise or the injuries that are on the skin, and these are -- you know, this is written about in every forensic pathology textbook, including my own, that some insights might be gained if you can get patterns; and if you can't, well, then you have to move on to something else.

Q. Doctor, let me refer you to People's 33 in evidence for this following question, Doctor.

A. Yes.

Q. Referring you to People's 33, do you see what's depicted in this photograph?

A. Well, this is a photograph of the back of the child's head. The scalp has been peeled downward and the scalp has been peeled forward out of you, and what we have is a rounded

three-quarters of an inch in diameter area of blood on the soft tissues overlying the skull, about where my finger is.

Q. And referring to that picture, Doctor, People's 33, I believe. And based on your experience of 40 years, Doctor, can you give us an opinion, to a reasonable degree of medical certainty, as to if that subgaleal hemorrhage in that photograph was caused by blunt force trauma?

A. Don't know. One of the things that you look for is is there a pattern of some sort and is there anything in the case history or the environment that might correlate with that. This is -- if it's an impact, it would probably be a flat surface, not a pointed one, not a linear one, not something else. Then I have to look at, well, where is the corresponding area of bruising in the scalp that's immediately over that area, and I don't see one. So, it tells us we have some bleeding on the surface of the skull without an apparent confirmation of the surface phenomena. It causes me to wonder, is that really an impact, or is it due to something else, coagulopathy being the main culprit.

Q. And if that were to be connected with blunt force trauma, would you expect to see some corresponding mark on the scalp internally?

A. I would not necessarily expect it on the surface, but on the reflected scalp that's directly over this thing. Actually, how do you get from here to there? And, so, I'm

doubtful that this is a blunt force impact site. It may have another explanation, coagulopathy being one of them.

Q. In terms of the photograph you reviewed, Doctor, is there any corresponding bleeding through the scalp directly opposite the subgaleal hemorrhage?

A. No.

Q. And do you have an opinion whether a subgaleal hemorrhage could have been caused by throwing a baby from shoulder height to a mattress 17 inches off the ground?

A. This isn't where an impact would likely occur. I have already discussed that I don't think it is an impact site at all. Therefore, I don't how it could correlate to any subdural. First of all, we have a chronic subdural that is months old with very, very little recent bleeding in it. So, I don't know what we are talking about here.

Q. Doctor, do you have an opinion as to the cause of this subgaleal hemorrhage?

A. No. I said it's possibly coagulation.

Q. How serious is the subgaleal hemorrhage in connection with the child's health? Is it a serious thing?

A. Is what?

Q. How serious is the subgaleal hemorrhage in connection with the child's health?

A. Trivial. I have nothing to attach it to. It doesn't seem to be connected with anything. I don't know what to make

of it.

Q. And in terms of the subarachnoid hemorrhage mentioned in the autopsy report, how serious is that, Doctor?

A. I think that is strictly incidental. This child was on a respirator, had virtually no circulation going to the brain because of the vast intracranial pressure. And in the course of this brain sitting there without any blood pressure in it for two days, basically -- all of these brains that come to autopsy have subarachnoid hemorrhage. So, it has no particular meaning.

Q. And do you have an opinion as to the cause of this child's coagulopathy problems, Doctor?

A. Sure, sepsis.

Q. Doctor, perhaps the next question, if I could ask you to come down. We are going to need the easel, please.

(Discussion off the record at the bench.)

THE COURT: Members of the jury, we are actually going to break for lunch at this point. We are going to stop until quarter of two. We will break until 1:45. I ask you, please do not discuss this case among yourselves or with anyone else. Do not read or listen to any accounts of this case. Do not visit any premises involved in this matter. Do not conduct any research involving this case. Do not request or accept any payment in return for supplying any information regarding this trial. Do

not make any judgment regarding this trial until you have heard all of the evidence and been instructed on the law. If anyone attempts to improperly influence you, please report it directly to me without first discussing it with anyone else. Enjoy your lunch. We will see you back here at quarter of.

(Jury excused.)

THE COURT: Doctor, I just want to caution you, as you are still a sworn witness and your testimony is continuing, please do not discuss your testimony in this case with anyone.

THE WITNESS: Fine.

THE COURT: Thank you, Doctor.

(A luncheon recess was taken.)

(Proceedings continue outside the presence of the jury as follows:)

THE COURT: Please be seated. Before we bring the jury out, on the break, the People submitted to the Court an Order to Show Cause, which the Court signed, and the Order pertained to precluding testimony from Dr. Ofshe, if I'm pronouncing his name correctly. The Court made the Order returnable Monday morning at nine o'clock. Mr. Frost, did you want to be heard on that?

MR. FROST: Yes, Your Honor. I want it to be made returnable at the close of testimony today, because

to bring Dr. Ofshe all the way back from Paris, only to have to turn around and go back, would be an extreme hardship for him, and also for the County. It would be an additional expense, and I might say, also, in reliance upon the Court's ruling, we have already spent a good, great deal of money purchasing tickets, airline tickets from Paris and round trip to Los Angeles, where he was next scheduled to go. That can't be recovered. So, I think it's critical to resolve this issue today. I don't see anything new. I think the whole idea of a *Frye* Hearing is to decide the issues raised in the affidavit. That's my position.

THE COURT: Does the defense object to the Court making it returnable right now?

MR. FROST: Not at all, Your Honor.

THE COURT: People object to that?

MS. BOOK: Have you had an opportunity to review everything?

THE COURT: I have reviewed everything that the People submitted; the Order, the Affirmation in Support and the exhibits, yes, I did. And you can certainly be heard further, if you'd like, but --

MR. GLASS: May we have one moment, Your Honor?

THE COURT: Sure.

(Discussion off the record between counsel.)

MR. GLASS: We have no objection if the Court rules right now.

THE COURT: Okay. Do you wish to be heard any further? I have reviewed the submissions. Anything you want to add?

MR. GLASS: No, Your Honor.

THE COURT: Mr. Frost, anything you want to add?

MR. FROST: Your Honor, I think we have satisfied all the *Frye* factors. I think the big issue here is is that within the ken, of course, within the ken of the average juror. Dr. Ofshe will tell you that studies have been made that the average layperson has very serious misconceptions about the importance -- on the issue of confessions; namely, that innocent people wouldn't confess to a crime, which has been demonstrated to be false through DNA exoneration cases and other exoneration cases and, also, that the average people consider evidence of gold standard and -- the average person considers a confession gold standard type of evidence, right behind DNA, and I think Dr. Ofshe indicated fingerprints, but it's apparent today -- we have the report of, I think it was, the National Academy of Science in 2007, that fingerprints have come under attack, also, as being conclusively -- conclusive proof.

And thirdly, most importantly, the average juror

is unaware that police interrogation over the past 50 to 60 years has followed a set pattern involving three factors of psychological influence, namely, the setting in which the interrogations are held, evidence ploys that are utilized to reduce the subject's confidence by saying, "Well, we have medical proof - your wife said you did it," that type of thing, to reduce the subject's level of confidence from a hundred percent down to near zero, and then other psychologically motivating factors, such as, "You are not going to be arrested. This isn't a crime. This is an accident. I'm going to talk to the DA, get you a good deal. I'm going to talk to the judge. I'm going to talk to" -- whatever I have to do.

All these things are unknown, that jurors may know something about from watching television, but they are unaware that this is standard police investigation, going back to Inbau-Reid in 1965. This is what they do. They have trained over 90,000 people in this technique or pattern of interrogation, and these people, as good apostles, go back to where they came from and spread the gospel.

So, these are issues that really are going to have to be decided at a *Frye* Hearing as to the qualifications of Dr. Ofshe. His qualifications are impeccable. As to whether this is an established field,

the problem -- I have done my client a disservice in referring to this as false confession as the topic of Dr. Ofshe's expertise. Correctly put, the topic is police interrogation and the use of factors of influence to bring about a confession, which may or may not be false. False confession is one of the phenomenon of the results of the use of extreme influence.

The cite -- the prosecution cites a couple cases, including the Rosario case, which found Dr. Ofshe to be eminently qualified. He's testified 330 times. He's testified, according to the e-mail, a copy of which I furnished to the Court, eight times in New York State. You don't read about the decisions in which he's permitted to testify, because it usually comes up on appeal.

If I may address it now, I think the touchstone here is LeGrand, and I note that one of the cases cited by the prosecution, the Koury case, the Appellate Division in our department likened false confessions to eyewitness identification testimony, which up until that time, the Third Department ruled was inadmissible. Well, the answer to that is People versus LeGrand, where the Court of Appeals said it was an abuse of discretion to preclude or deny an expert from testifying on eyewitness identification, where the eyewitness identification was the, if not the only evidence in the case, almost the only

evidence in the case. We have a precisely similar situation here.

Further - I will finish with this - the cases they cite involve a different, wholly different subject. This was -- Koury, I think it was the Defendant's mother said he was highly susceptible. And I think in the Lee case, Dr. Camperlengo testified as to a mental condition at the time to make it highly susceptible. And the other case, the Lee case, said the same thing. That's a different area, and we are talking there about particular individuals.

Dr. Ofshe would not testify in this case that, in his opinion, this is a false confession. He will go through the police interrogation, how it's done. He will diagram it, explain it on a flip chart, discuss the setting, discuss the evidence ploys, discuss the other motivational factors; and besides that, at the *Frye* Hearing, he would testify as to studies that have been made regarding exoneration, people who have been exonerated by DNA and likely strong evidence of 20 percent to 50 -- in excess of 50 percent in the State of Illinois, and he will testify to studies, three studies that he will tell you just what I told you about, it being -- that these are matters that are beyond the ken of the average juror, and he will also tell you there's

developed literature in this field, as there is in all fields of specialized scientific knowledge. There was a review in 1992 with over a thousand citations, a bibliography with citations in 2003 and 2002 for all of that.

I respectfully submit that we are entitled to the *Frye* Hearing. The issues that are raised are issues that are properly done in a *Frye* Hearing, and I might finish by saying this is, essentially, a motion to reargue. We haven't really come up with any law or the Court hasn't overlooked any principle of law which is a ground for reargument, if you want to construe it as an argument for renewal with regard to the facts.

So, based upon that, I would request that you deny the Order to Show Cause.

THE COURT: Thank you. Mr. Glass, anything you want to add?

MR. GLASS: Very briefly, Your Honor. I don't know how this can be a motion to reargue when there wasn't a motion on the table in the first place. This is our motion to preclude.

Secondly, putting aside for a moment the Court's considerable discretion in dealing with matters of evidence, Mr. Frost makes very cogent arguments, but I think he's in the wrong forum. He should be at the

Appellate Division or the Court of Appeals. I think, as a trial level court, again putting aside matters of discretion, this Court is obligated to follow the law in this State as it exists in its decision of law, and I think it's pretty clear that false confession evidence has not gained acceptance in the community for which -- I guess the social psychological community, and the courts of this State generally have not accepted it, and the Court is bound to follow that law, and the application ought to be granted.

THE COURT: Mr. Glass, isn't the question of whether it's been generally accepted by the scientific community, isn't that a question that can only be answered after a hearing has been held? I mean, perhaps in other cases, courts have found that it isn't generally accepted, but those are older cases. Shouldn't a hearing at least be held for the Court to consider the evidence and then make its determination?

MR. GLASS: If the Court feels comfortable with that result, I can't disagree with it, but we are relying on precedent as it exists now. I think that's fairly clear in the cases that we provided to the Court.

THE COURT: Okay. I understand both sides' positions. The People's motion to preclude, asking the Court to, essentially, summarily preclude the testimony of

Dr. Ofshe, is denied. The Court, as I indicated before, will conduct a *Frye* Hearing this Monday at nine o'clock a.m., and that will be for, obviously, for the purpose of determining the admissibility of Dr. Ofshe's testimony.

Anything further from the People before we bring the jury out?

MS. BOOK: Did you get our other Order to Show Cause, Your Honor?

THE COURT: We received a second Order to Show Cause from the People. The Court signed it and returned it to the DA's for service on the defense. Service was ordered to be made personally by the end of the day today. The Court set a return date for this Monday at 9:00 a.m.

MS. BOOK: Thank you, Your Honor.

MR. FROST: Can we know the subject of that, Your Honor?

THE COURT: The subject matter, the Court's understanding, was allowing the People to call a CPS worker in rebuttal, as part of a rebuttal case, for the purpose of impeaching the Defendant's testimony to the extent that he claimed the statements that he made to the police were false. That's the general --

MR. FROST: Thank you, Your Honor.

THE COURT: That Order to Show Cause -- and incidentally, the People -- I don't know if it was set

forth in the alternative, but it was in the last paragraph; either alternatively or outright consented to a *Huntley* Hearing, if it was determined appropriate.

MR. GLASS: Outright consent to a *Huntley*.

THE COURT: That Order to Show Cause will be returnable Monday at 9:00 a.m. for the defense to submit any written opposition, and then the Court will decide at that time whether a hearing is necessary or what other decision we will make. Anything further from the People?

MR. GLASS: No, Your Honor.

MS. EFFMAN: I'm ready, Judge.

THE COURT: Doctor, I think we can have you retake the stand, and we will bring the jury out, please.

(Whereupon, the jury entered the courtroom.)

DIRECT EXAMINATION

BY MS. EFFMAN: (Continuing)

Q. Doctor, I ask you to step down to draw for the jury the retinal area of the retinal hemorrhage. Can you tell the jury, what is a retinal hemorrhage?

A. What do you want to know about them?

Q. Please tell us what they are.

A. Okay. In the common parlance, retinal hemorrhages would be bleeding that occurs in the sensory element of the eye, the retina. And without any further modification or issues, that's a general term for that.

Q. And would any drawing be helpful to explain to the jury?

A. Sure. There are many mechanisms for retinal hemorrhages, but in the context of this particular case and increased intracranial pressure, I think, perhaps, a diagram might help that.

Q. Can you please draw us a diagram, Doctor?

A. Okay. This is the eye. The retina is right here. The optic nerve, which connects the eye to the brain, is right here (indicating). And, actually, the dura of the brain is this sheath here that blends with the back of the eye, and this sheath is the optic nerve. I think I will just label this "ON" for optic nerve, and that is the retina.

The arterial circulation to the eye comes in through the ophthalmic artery that comes off vessels at the base of the brain and extends into the center of the optic nerve and arborizes out to provide blood supply to the retina. The venous drainage more or less parallels that. There is the vein called the central retinal vein, and at some point, it traverses the space around the optic nerve and goes for a ways and then, eventually, finds its way into the jugular systems and other systems of the venous drainage in the base of the skull.

Now, let's do it this way. And the optic nerve joins -- let me just do it like -- it joins the brain. The

point that I'm making here is this is the subarachnoid space, and it contains cerebrospinal fluid that surrounds the brain and also surrounds the optic nerve sheath. The point of that is that, whatever the pressure is inside the head, it's going to be transmitted down the optic nerve sheath. So, if you had a gauge here that is measuring pressure and you had a gauge here that's measuring pressure (indicating), they would be pretty much the same.

Now, that pressure normally is -- I will say normally is equal to something less than about 15 millimeters of mercury. That's the equivalent of venous pressure. If I were to put a needle in one of my veins and put a pressure monitor on, that's about what it would be. It would be between zero and 15. So, that's the normal situation.

If there is increased intracranial pressure, obviously, this gauge is going to go up. If it goes above 15 millimeters of mercury, it means that this venous blood is squeezed. It can't exit. So, what you basically end up with is a situation like -- imagine my hand to be the retina, my wrist to be the optic nerve sheath. And if I were to put a blood pressure cuff or tourniquet on and cuff it up just to the point where it included venous outflow, but arterial blood flow is still going in there at a hundred millimeters of mercury or thereabouts, I've got blood coming into the eye, but no way for it to get out. And then what happens is blood builds back up

and bursts out of little capillaries and, actually, may burst into the optic nerve sheath and produce retinal hemorrhages. And this has been a subject of study for 50, 60 years and has been studied in animals, primates, humans; you name it.

Q. If you have increased intracranial pressure, that can cause a retinal hemorrhage?

A. By this mechanism, it prevents venous drainage from the eye and it builds back up and hemorrhages occur.

Q. Given the existence of a chronic subdural collection and septic shock in this child, what are the dynamics of increased intracranial pressure, and what does it mean in this child?

A. One thing that may be -- I'd like to make another drawing, if I could, since we have paper. We can take a look at something. Let's just for a moment diagram in very elementary fashion the nervous system. We have the ventricles of the brain here and so forth; the skull here. This would be the subarachnoid space, spinal cord. So, what we essentially have is a closed system. So, what's inside of here? What's inside of the box? We have the brain and the water that's inside the brain that makes up the tissue. We have blood that is in the blood vessels of the brain, and then we have cerebrospinal fluid, which is filling all this space around. So, that's the stuff that's in there.

Now, if you happen to have something else, which

could be a subdural hematoma or a cyst or brain tumor, or any mass or lesion, in order for that to exist in there, something has got to leave. If the room is filled to capacity and somebody else wants to get in, somebody is going to have to leave to make room for that new person, and the something that leaves is this, the cerebrospinal fluid. It is produced constantly, every day; you and me, about a pint a day is made, and a pint a day has to be absorbed.

Your pressure goes up a little bit because of this new -- I will just call it X, whatever it happens to be, and then an equal volume of cerebrospinal fluid is going to have to be absorbed to make way for that. And we have a situation which -- maybe we can diagram with a little graph here; that we can say this is pressure on this axis, from zero going up, and this is volume on that axis. Now, we already know that the pressure that the brain likes to operate in is somewhere -- let's just say it's here at about 15 millimeters of mercury, and this varies somewhat. It goes up and down, and there's always a balancing effect that cerebrospinal fluid will make way for.

Well, when you get into a situation where the volume exceeds the capacity of absorption, then what happens is pressure goes up. It turns out that the way -- how much capacity do we have to control this is based largely on the volume of cerebrospinal fluid that there is, because if you

haven't got any, you can't absorb any. If it's trapped in some way and you can't absorb it, then you are stuck. So, in a baby, it might be around 40 to 50 milliliters.

Let's assume that this is in a normal situation and the pressure rises and falls and does that and let's -- we might use it like a bank balance. Say you have $100 in your checking account. I hope you have more than that, but let's say you have a hundred, and you write a check for $20. No problem. The bank will pay it off. This pressure, the pressure on you financially goes up a little bit, but then it comes back down. Everything is fine. There are no symptoms, no nothing. Let's say you write a check for another 20 or $30, still okay. You can compensate for that. The brain compensates. This mass is getting bigger. What if you start getting real close to the hundred mark over here? Then we have a situation where a very tiny amount of increased mass, whether it's due to this subdural or cyst, or maybe there's some blood or maybe there's some edema, that raises that volume. Sometimes in a baby, it may be as little as one or two milliliters, which is about the volume of the tip of your little finger. Then we go over. If you write a check for $101, or $100.01, then all sorts of nasty things happen from the bank. You bounce a check, you get charged. They call you up, all these sorts of things. Those could be equivalent of symptoms.

So, when a child reaches a place, or anyone reaches the place of capacity where this thing is too big or increased in size too much, then pressure goes up; and in the ranges that go up from this, the brain doesn't like it. You will develop symptoms. Respirations will cease, vomiting, unconsciousness, seizures, all sorts of things. And once you get up this curve a ways, it's very hard to go back down. Some irreversible things happen. Your reputation is damaged because you bounced a check, if you want to use that analogy.

This is the whole dynamic of intracranial pressure. We try to operate in this general zone of equilibrium, and when things change, a small amount of hemorrhage, swelling in the brain, inflammation around the brain, which would retard the ability to absorb cerebrospinal fluid, what happens? Increased intracranial pressure. And if that goes up significantly, then you end up with complications, like retinal hemorrhages, herniation of the brain stem, pressure on the brain stem, decompensation and sometimes death.

Q. Can retinal hemorrhage be caused without any trauma?

A. Yes. I mean trauma -- well, how does trauma work? By making a subdural, by making edema in the brain or causing the heart to stop or the chest not to allow the lungs to expand, and then the brain doesn't get enough blood flow, and that's how you do it. There may be several steps between a traumatic injury and why increased intracranial pressure goes

up, but anything that plugs into messing up this nice equilibrium here will get you there.

Q. Certainly, Doctor, are you aware that there are a number of nontraumatic causes of retinal hemorrhage; correct?

A. There are some, if there is something wrong with the blood. For example, people with leukemia may develop hemorrhages because leukemia infiltrates in the retina; and if you have coagulopathy, bleeding, it can occur there. If you are taking Coumadin or Heparin or something for blood thinner and you have too much, you can end up with bleeding in the eye. If there's chest compressions, as in trauma or some other circumstances, backup of venous pressure into the eye may occur, and you may end up with retinal hemorrhage. But probably the major cause, however you get there, is increased intracranial pressure.

Q. And would that include increased intracranial pressure from meningitis?

A. Sure, and almost anybody who has meningitis will have some disorder of the absorption of cerebrospinal fluid, plus some edema on the brain, putting a load on this biometric system here, and we can call this the pressure/volume equilibrium.

Q. Do you have an opinion, Doctor, as to the cause of this baby's retinal hemorrhage?

A. I think increased intracranial pressure. The child

died with a respirator brain, meaning the pressure was probably up here, a hundred millimeters of mercury or more. There's no subtlety to that.

Q. Thank you, Doctor. You previously showed us some pictures. Let's talk about infection briefly. You previously showed us some slides on the T.V. with evidence of pus on the brain. Do you recall that, Doctor?

A. Yes.

Q. In what portion of the brain did you find evidence of infection or pus?

A. Virtually every place where the subarachnoid space on the surface of the brain was sampled. It varied from place to place, but it was everywhere.

Q. And that was an infection consistent with the bacterial infection streptococcus pneumoniae?

A. I sampled, I think, three sections of the cerebral cortex and had them gram stained, and there were bugs in every one of those.

Q. And that is the bag of slides that's now in evidence, Defendant's R. Is that correct?

A. I believe the gram stains and everything are in there. There they are. They are in that plastic container.

Q. This is the evidence you looked at that showed infection on the brain?

A. Exactly.

Q. Besides the microscopic slides, did you see any -- based on your review in this case, did you see any evidence of any external problems within the child's eyes that indicated to you an infection?

A. Yes. In the tissues of the orbit surrounding the eye, that's primarily where the worst infection and abscess formation was.

Q. As part of your review of the autopsy report, was there an examination done of the sinuses as part of the autopsy report?

A. No. By that, I mean when the brain is taken out, then you have the empty skull base, and there are a number of paranasal sinuses that are reachable through bone of that skull base, and none of those were opened or examined.

Q. And what is the significance -- or what would you look for, Doctor, if you are doing an examination, what would you look for in doing an examination of the sinuses?

A. Well, in the face of sepsis due to this particular organism, sinus infection would be way high on the list for a locus where this whole thing began, and it would be appropriate to open those - it takes just a few minutes - to see what's in there. And if you find pus in one of the sinuses, by direct extension, that's probably how it got into the brain. And it's incumbent upon you, if you are there to try to find out what went on with the child like this, you've got to collect the

evidence, and it wasn't.

Q. The autopsy report refers to macrophages being on the brain. Is that the same thing as pus?

A. Yes and no. Macrophages are scavenger cells that take a few days to reach a site of injury. There are other cells that get there first called polys. They come from the blood. And, so, the pus is really the collective of dead cells, whatever they are, inflammatory cells. There might be some blood. There's necrotic or dead tissue, fluid and organisms. So, it's the gunk that builds up in the gutters, so to speak.

Q. In which eye did you find evidence of bacterial infection?

A. I think it's in both of them, actually; more on the right, tissues around the right eye that I found that.

Q. Doctor, can you tell us, what is bacterial meningitis? What is meningitis first?

A. Well, meningitis is an inflammation of the coverings of the brain.

Q. And what is bacterial meningitis?

A. If it's bacteria, that's the thing that caused it.

Q. Can you please explain the natural progression of bacterial meningitis?

A. Sure. The process -- bacteria don't just usually get there unless there's an open head wound; sometimes with gunshot

wounds or fractures where the skull breaks and everything is contaminated, that's where -- or a sinus fracture. Then bugs can get into the coverings of the brain. More commonly, it is thought to occur hematogenously. In other words, you will have an upper respiratory infection, maybe a pneumonia, possibly a sinus infection, and that somehow allows bacteria to reach the blood, which then goes to every place and settles somehow in the brain. That's the common mechanism.

Another is direct extension, because the sinuses are very, very close to the intracranial environment, and if you have an abscess in a sinus, bugs can penetrate the dura and get into the meninges and get into the brain that way.

Q. Can someone have meningitis and sepsis at the same time?

A. Oh, yes. In point of fact, they are hand in glove.

Q. Did you find any evidence of bacterial meningitis in the case of [redacted]

A. Ask me that again. I missed it.

Q. Did you find any evidence of bacterial meningitis in this case?

A. Bacterial meningitis? Yes, of course, all over the place.

Q. Can you tell the jury what that evidence is?

A. Well, that is the fact that even in the gross examination of the brain specimen, it looked like there was pus

in the coverings of the brain. It looked creamy and green, and that's the first tip off. It isn't the end of it. Then you go to the microscopic, and there it is. And the further explanation or nail down of that fact is the fact there is organisms there. So, it looks like it, smells like it, tastes like it. I mean, that's pretty gross, but never mind. We have at least three levels of proof of meningitis in this case.

Q. And how serious is a bacterial meningitis infection in a four-month-old premature baby?

A. Very serious. In real young ones -- well, babies of this age that are not infected with pneumococcus, but a more common organism called H flu -- H flu is a more benign form of meningitis that not many kids die of because it gets diagnosed and is easily treatable. Pneumococcal meningitis, on the other hand, is a worse actor, and the whole survivability depends on discovery and treatment.

Q. Doctor, do you have an opinion, to a reasonable degree of medical certainty, if trauma caused sepsis, overwhelming sepsis in the case of this baby?

A. Is trauma related to the sepsis? I would say not.

Q. Can you explain your opinion, Doctor?

A. Well, first of all, how would a traumatic episode, whatever it is, to be defined, produce bacteria? It can't produce bacteria. How does it help to introduce bacteria into a system, the blood or the brain or whatever? Now, if you had

an open head injury, that's trauma, and there's contamination. That's how it could get in there. That's the easiest way. In terms of just some traumatic episode, blows and compression to the bowel and the abdomen can open up bacteria into the bloodstream from the gut. But in terms of just -- or a fracture going through a sinus. Those are about the only ways that I would imagine making sense.

Q. And in this case, was there any evidence of any skull or nasal fracture, Doctor?

A. No, no.

Q. Do you have an opinion, Doctor, as to whether repeated bouts of head trauma could cause this baby to aspirate, therefore causing pneumonia leading to sepsis?

A. Many things are possible. It just doesn't -- the evidence isn't there to enable me to start going down that kind of a scenario. It doesn't make a lot of sense to me.

Q. Was there any evidence in the records you reviewed that this child had any evidence of aspiration; that he had aspirated?

A. I couldn't find anything, and I don't think it's written in the autopsy.

Q. Did you find any evidence in the case of this child that supports the prosecution's theory that blunt force trauma caused this baby's problems?

MS. BOOK: Objection, Your Honor.

THE COURT: Basis?

MS. BOOK: Your Honor, he's already given his opinion many times. This has been asked and answered.

THE COURT: Overruled.

A. Blunt force trauma is a notoriously fuzzy, gray description, but we are basically talking about an impact of some sort that's not sharp and cutting and that could be inflicted or accidental. The important part of an impact injury scenario is where is the impact? What are the effects of it? And in this particular case, I'm not at all convinced that there is an impact site that is a good candidate on the head. The only one that might be is this right parietal thing that doesn't have any associated deep scalp bleeding to it.

The other things are, if it's an impact injury to the head, then where is the brain injury? This child had chronic fluid collections on both sides of the brain. The amount of acute bleeding in this process is minimal; mostly posterior. So, if there's a great big subdural hematoma caused by trauma, where is the acute bleeding? I don't see it. So, we have an ongoing process. Could trauma have occurred? I suppose so, but I can't find a great big headline here in the evidence to help me take that path.

Q. Doctor, can you rule out, to a reasonable degree of medical certainty, that trauma caused this child's death?

A. I could say yes, and on the other side of it, I don't

find any persuasive evidence that head trauma was important in this child's demise.

Q. And Doctor, what caused the death of this child?

A. What does what?

Q. What was the cause of death of this child?

A. Sepsis and bacterial infection that led to meningitis and abscess around the eyes and bacteremia.

MS. EFFMAN: No further questions.

CROSS-EXAMINATION

BY MS. BOOK:

Q. Hello again, Doctor.

A. Good afternoon.

Q. Let's talk about --

THE COURT: Do you have an issue?

MR. FROST: I'm sorry to interrupt, but Ms. Effman asked if she could have a couple seconds to consult with me. We are consulting.

THE COURT: I thought she said no more questions.

MS. EFFMAN: I apologize. I may have one or two more questions.

BY MS. EFFMAN: (Continuing)

Q. Doctor, do you have an opinion, to a reasonable degree of medical certainty, as to what caused the increased intracranial pressure that caused the retinal hemorrhages in

this case?

MS. BOOK: Objection. This has been asked and answered, Your Honor.

THE COURT: Hasn't it been?

MS. EFFMAN: I don't believe so.

MS. BOOK: I believe it was, several times, actually.

THE COURT: I will overrule the objection, but I think we are starting to ask repeat questions here. I will let him answer this question.

A. Okay. There are a number of processes that -- against the dynamic volume/pressure arrangement that I was talking about. The child has fluid collections over the brain that may or may not be absorbable by the route of the cerebrospinal fluid. They may be walled off. So, they may be the equivalent of a big X there, which puts the capacity for compensation in a baby like this over to the right-hand-side, close to an overdraft. Then we have the bacterial infection, which is going to impede the amount of normal cerebrospinal fluid absorption by a variety of mechanisms that are more complicated than probably need to be gone into. But increased intracranial pressure is almost always present with meningitis. So, we have that load on top of the fluid collections.

Then once you have a situation where a child is decompensating, that adds a further load due to brain swelling

and cerebral edema from the fact that the kid isn't breathing very well and maybe has lung infection that impedes gas transfer. So, you start ending up with four or five mechanisms that worsen the intracranial pressure environment and lead to, among other things, retinal hemorrhages.

MS. EFFMAN: Thank you, Doctor. One moment, Judge. No further questions.

THE COURT: Ms. Book, whenever you are ready.

CROSS-EXAMINATION

BY MS. BOOK:

Q. Doctor, let's talk about you testifying as an expert witness in cases.

A. Okay.

Q. How much of your income comes from case review and possibly ultimately testifying in a case?

A. At the current time, it may vary. I'm drawing some investment and retirement income that has nothing to do with anything except being there. Over and above that, in terms of earned income, it may vary anywhere from 50 percent to 25 percent.

Q. And in the past, has it been as much as 80 percent?

A. There have been times when that was true, before I drew a retirement income, that it could be so, yes.

Q. How much did you make last year from consulting on cases?

A. Probably less than $50,000.

Q. Okay. And how many trials have you testified in so far this year?

A. Let's see. I think four.

Q. Okay. And the four trials that you testified in, as well as the cases you have consulted on, approximately how much have you made so far this year?

A. Let me think. Maybe -- probably a little more than 50. I haven't gone and run the tax things yet, but it may be about 60,000.

Q. And you said you testified in four trials so far this year?

A. Yes.

Q. How many of those were for the prosecution?

A. None.

Q. And how many times did you testify for the prosecution in 2008?

A. None, no times.

Q. How many times did you testify for the prosecution in 2007?

A. Zero. I haven't testified in a prosecution case since the middle 90's.

Q. Okay. Not only do you principally testify for the defense, but you testify assisting criminal defendants or people whose children were to be taken because of allegations

of child abuse; correct?

A. That is the common scenario of the cases I get involved in, right.

Q. Okay. And how much do you charge an hour to prepare for trial?

A. My regular rate, which is always negotiable, is -- starts at 400 an hour for out-of-court work and 600 an hour when I'm giving sworn testimony at deposition, hearing or trial, and that may be subject to negotiation because of the Public Defender's limits, and then I have to choose whether I'm going to do the case at that level or not.

Q. Did you enter into a negotiation for a reduced fee in this case?

A. Pardon me? I'm sorry.

Q. Did you enter into a negotiation for a reduced fee in this case?

A. Yes. There's a reduced fee in this case because of the limitations of funding.

Q. And how much are you being paid an hour in this case?

A. I think it will turn out to be $250 an hour for whatever I do.

Q. Okay. So, as you sit here today, how much have you made so far?

A. I was paid a retainer against which I worked, and I think that was $2500, and I have submitted a bill for some work

in preparation for the trial, and then we will see what the time works out and expenses after that.

Q. So, how many hours before you got here today have you put into this case?

A. I don't remember what it worked out to be; probably -- I mean, I have billed about 4,000. So, whatever that works out to be. That's eight hours. Isn't that eight hours? I guess.

Q. So, as you sit here today, you have already made 4,000, and that's before you have testified?

A. I have billed for the additional 1500. I haven't received it.

Q. Okay. And are you also being compensated for the time it took you to travel here?

A. That, I usually bill separately at the rate of $100 per hour, and that will go into my final billing and accounting for what I did in the case.

Q. And when you can get them, you prefer first-class tickets, don't you, in your cases?

A. Oh, I would love them, but I can't always get them, and I usually end up flying coach or use miles to upgrade.

Q. How many prosecution offices currently have you on retainer?

A. That I have done cases for?

Q. Currently, do you have a retainer with any

prosecution office?

A. No, I do not.

Q. As you sit here?

A. No, I don't.

Q. And you have also been hired by the media before to give comments on cases; haven't you?

A. I have never been paid by the media, other than expenses to, several years ago, to go to New York to appear on one of the programs, but I have not been paid for my time. They reimburse my travel.

Q. Well, didn't you give an opinion to the media in a civil suit indicating that a cellular phone gave a woman brain cancer?

A. I might have. I don't recall.

Q. And you spoke with the defense prior to coming out here today; right?

A. I have spoken with the defense counsel, of course, yes.

Q. How many times?

A. Well, I don't know how many times on the telephone with Mr. Frost. Usually, Ms. Effman was in listening. I don't know; maybe four or five times on the phone. We met in person on one occasion in my office in Chicago.

Q. Did Ms. Effman and Mr. Frost fly out to Chicago to meet with you?

A. They did. I assume they flew. I don't know how they got there, but they met with me, and we met again yesterday and very briefly this morning.

Q. Okay. And they told you that their theme and theory of this case is sepsis; correct?

A. No. That isn't how -- in fact, that did not come from them. That came from me.

Q. Okay.

A. When I was asked to look at the case and see what's there, this became apparent; that that was an important issue, and I informed counsel of that.

Q. And you know that the medical examiner in this case found that [redacted] died from severe closed head injuries with a cerebral edema due to blunt force trauma. Isn't that correct?

A. Words to that effect. I'm aware that that's his opinion.

Q. And he ruled [redacted] death a homicide?

A. I know that.

Q. And in medical school, you were trained to write reports on cases that you were involved in; weren't you?

A. Well, yes. As a medical student, you write in the chart the standard dialogue of chief complaint, history, your examination and conclusions, of course. You do that all the time.

Q. And where is your report in this case, Doctor?

A. I did not write a report. I was not asked to do so.

Q. Did you ask the defense if they preferred you to not write one?

A. I always ask, "Would you like me to write a report?"

Q. Did they indicate --

A. They may say yes; they may say no. And they said, "We don't think we want one in this case."

Q. And did you know that if you wrote a report, it would have to be turned over to the prosecution in advance of the trial?

A. I have no knowledge of what the rules are. I am aware that that sometimes happens. I don't know what the motivation is, not my business.

Q. And have you spoken to the attorneys in this case about what the witnesses who have testified before you have said?

A. I have had a little bit of feedback about that. I have had the transcripts of some of them.

Q. Who have you read the transcripts of?

A. I have read a transcript of Dr. Jenny, Dr. - I will get the name right, I hope - Waldman, a neurosurgeon, the transcript of Dr. Sikirica. I think that's it.

Q. Did you read Dr. Edge's testimony?

A. I don't believe I was provided with that, no.

Q. Did you read Dr. Ojukwu's testimony?
A. I don't recall so.
Q. Dr. Kardos?
A. No.
Q. And when you met with the defense prior to this case, did you give them an indication of what type of questions they should ask you?
A. Inevitably, I suppose if we are dealing with an issue, I might make a suggestion that this might be a question or a way to get to the answer; perhaps it might be superior than the one that they put out at first. So, we do talk about that a little bit.
Q. Okay. And prior to coming here today, you already testified you reviewed the autopsy report; correct?
A. Ask me that again. I missed it.
Q. Prior to coming here today, you reviewed the autopsy report; correct?
A. Of course, I looked at the autopsy report, sure.
Q. And the OB/GYN records of the mother?
A. Yes.
Q. And records from the birth at Albany Medical Center?
A. That's right.
Q. Records from the subsequent transfer to St. Mary's Hospital?
A. The final admission. I mean, the key admission, yes.

Q. No. I'm talking about when the babies, after five days of birth, were doing well. They got transferred to the other hospital for another 15 days or so.

A. I think I was provided with that, but I simply don't recall right now.

Q. Do you recall if you read it?

A. Well, I don't know if I was provided with the two hospitals. And if asked that question, how many hospitals did the kids go to, I would have said I don't remember; I don't know.

Q. Okay. So, you don't have a recollection as you sit here today --

A. I don't have a recollection, no.

Q. -- of reading the St. Mary's records from the twins transfer after May 9th?

A. I don't remember.

Q. Okay. And did you review the well-baby checkups?

A. There were a number of those. I certainly couldn't recite the dates and times of them, but that was part of my packet.

Q. And you testified that you have reviewed the medical records from when [redacted] was admitted to the hospital on September 21st?

A. For sure, right.

Q. Now, did you review a one-page statement given by the

Defendant, Adrian Thomas, the child's father?

A. I'm trying to recall what I was provided. There were many recitations in hospital records and in various forms about what happened proximate to the child's admission.

MS. BOOK: May I approach, Your Honor?

THE COURT: Of course.

A. And I simply don't recall all of those.

Q. Doctor, I'm going to hand you what's in evidence as People's Exhibit 15. This is a statement given by the Defendant, [redacted] father, Adrian Thomas, on 9/22 of '08. Can you tell me if you have read this before?

A. I don't know if I have seen this. I don't recognize -- usually, I recognize -- and if I can read the handwriting. I don't know if that's part of my package or not.

Q. Okay. Fair enough. I'm going to show you People's Exhibit 17 in evidence. This is a ten-page statement given by the Defendant, Adrian Thomas, between 9/21 and 9/23/08. Are you familiar with that?

A. This doesn't look familiar, the multi-page thing. It's conceivable it was part of my packet, but I don't remember.

Q. Is it fair to say you don't have any recollection of reading that?

A. I do not.

Q. So, is it fair to say that you don't have any

recollection of, in the Defendant's own words, him saying that he hit his baby's head against the babies' crib?

A. I am aware that that's immortalized in medical records from somebody else's statement, but in his own words, I can't say that I read that.

Q. Okay. And are you familiar with, out of this statement, the Defendant saying that he picked his child up over his head and threw him with considerable force onto a mattress 17 inches off the ground three times in four days?

A. In various ways in the medical chart, those facts or something very similar to that were reported, and I saw that.

Q. But you never read it in the Defendant's own words?

A. I don't recall doing so, no.

Q. Okay. And are you familiar with -- the Defendant says, on the morning [redacted] got sick, that he threw him back into the crib at least 15 inches. Were you aware of that?

A. I don't remember the number, but that was, again, recited in the medical record.

Q. And Doctor, I'm going to hand you People's 18, 19, 20 and 21 that are in evidence. Are you familiar with nine hours worth of video?

A. No.

Q. Of the police interviewing the Defendant?

A. No.

Q. Whereby he demonstrates the amount of force he used

when throwing this baby?

A. I have not seen that material. I am unfamiliar with it.

Q. So, is it fair to say you are not familiar with the Defendant's interpretation of the amount of force he used on throwing his baby on that mattress?

A. I am not aware of his particular words in that regard, no.

Q. Thank you. Okay. And going back to the autopsy report for a moment, are you familiar with the fact that Dr. Sikirica is board certified in forensic pathology?

A. Yes, I am.

Q. And that he took that extra year of schooling and training?

A. Yes. Usually, a year fellowship is required. He must have done that.

Q. And that Dr. Sikirica inspected [redacted] in person head to toe. Are you familiar with that?

A. I hope so. He did the autopsy, yes.

Q. And that he prepared the slides?

A. He prepared the autopsy report and everything that came with it.

Q. Okay. So, when you were showing the slides on the video earlier, you said that we did that in this case; we took these cuttings from slides. Did you mean Dr. Sikirica did

that?

A. I assume he did so. Sometimes that's the job of the helper in the morgue, but he's responsible for it, and I would say -- there it is.

Q. So, when you say "we," you didn't mean --

A. Well, I didn't select them. They were provided to me by way of the Medical Examiner's Office through counsel and a FedEx or something to me.

Q. Okay. And you are aware that Dr. Sikirica signed the death certificate?

A. I'm sure he did.

Q. And are you aware that he performed this autopsy on September 25th but didn't prepare his final report until the end of April?

A. There were some months that elapsed. I'm aware of that.

Q. And did you know that, during that time, he was waiting for cultures to come back from Samaritan Hospital?

A. I don't know. I recall that there was some question about, maybe in the transcript, of why the delay, and I think he said there were some delays in laboratory reports. I have no personal knowledge of that.

Q. Okay. And did you know that he was taking the time to review all the medical records of the child?

A. I don't know that. I don't know what he was doing.

Q. Did you know that Dr. Sikirica took the time to read the ten-page statement and the one-page statement of the Defendant?

A. I don't know what he examined or what he took the time to examine.

Q. Okay. Did you know that Dr. Sikirica examined the statement given by the child's mother, Wilhemina Hicks?

A. I have no idea what other materials, outside of the objective examination, he examined.

Q. Well, isn't that listed in the autopsy report, Doctor, everything that he examined?

A. No. He didn't say, "I examined all these records from birth to death." I don't believe that those things are immortalized there, but it does say what tissues he examined, what parts of the body he examined, what he took for microscopic preparations. That's all in the report.

Q. And did you read the statement given by Wilhemina Hicks, the child's mother?

A. I don't believe so.

Q. And would you agree, Doctor, that if you had the opportunity to assess [redacted] in person, that would be the preferred way to go about conducting an autopsy?

A. Well, sure. Then I could select what I wanted to have sampled, photographed and all of that. That's obviously the best.

Q. Okay. So, Dr. Sikirica had a bit of an advantage, let's say?

A. He had the advantage to do it and the responsibility that went with it.

Q. Now, let's talk about your testimony in some of these prior cases for a moment. It's common that you testify regarding preexisting head injury; isn't it?

A. When it's present, I testify to it, yes.

Q. And in a large percentage of cases that you have testified in in the last ten years that involved a subdural hematoma, you found a preexisting one; have you not?

A. It's surprising that maybe 75 to 80 percent of the cases that I come to -- that find their way to me - I don't know how they do that - that there may be a subdural, and there's some element of chronicity in it.

Q. So, 75 to 80 percent of the cases you testify in, you find a preexisting subdural hematoma?

A. Yes, ma'am, I did.

Q. That none of the other medical examiners find?

A. Not necessarily.

MS. EFFMAN: Objection, repetitive.

A. Not necessarily.

THE COURT: Hold on. There's an objection. The objection is sustained.

Q. And you have testified in the nanny case in Boston;

correct?

A. I did.

Q. Very high profile case?

A. It was a very notorious high profile case, yes.

Q. And Louise Woodward was on trial for the death of a child in her care; correct?

A. That's correct.

Q. [redacted]

A. That's the name of the baby.

Q. And in that case, you found a preexisting head injury; correct?

A. I did.

Q. And then, Doctor, isn't it true that you turned slides over, that you had received from the prosecution, over to a woman by the name of Katie Leachman, who was a reporter for *60 Minutes*?

A. I don't know what her assignment was. I did that. She requested the materials, and with the consent of the attorneys that were involved at the time, I -- they said they had no objection to it and, therefore, I did.

Q. And the case was over at that point; right?

A. The case was over.

Q. So, you weren't still being retained by the attorneys; correct?

A. Correct.

Q. And you turned these slides -- essentially, you turned a part of this dead baby over to the media. Is that correct?

A. I don't know how to comment about that. I mean, slides are --

Q. Did you, Doctor? Is it a part of the baby?

A. The slides are actual tissues of the individual, however you wish to define it. Those materials were, with the consent of the attorneys who hired me, given to Ms. Leachman.

Q. And, obviously, the parents in that case were pretty outraged about that; weren't they?

A. I don't --

MS. EFFMAN: Objection, relevancy, argumentative.

THE COURT: Sustained.

Q. And did you know that you were criticized by medical ethicists about your decision to do that?

MS. EFFMAN: Objection, argumentative.

THE COURT: Overruled.

Q. Is that a yes, Doctor?

A. I don't know. This was a very high profile case that had many tempers running high, and there were a number of people that were criticizing me essentially for being a defense witness and the content of the material that the case involved, and I don't know how many of them were ethicists or otherwise.

Q. Would it surprise you if I told you that medical ethicists criticized your decision to turn over slides to the media?

A. I don't know which medical ethicist this is, whether that's an appropriate qualification or not. I don't know.

Q. And for that case, Doctor, after you turned the slides over, would it be fair to say that you got more media coverage; that you got interviewed on television?

MS. EFFMAN: Objection, relevance.

THE COURT: Overruled.

A. There was a great deal of media coverage after and during the trial. Of course, during the trial, there was no way that I could comment. Afterwards, there were a number of interviews and media of all sorts regarding that, and I gave interviews and provided information.

Q. And these interviews also continued to take place after you turned over these slides to the media; correct?

A. Certainly, yes.

Q. And you were compensated between 60 and $70,000 for that trial; weren't you?

A. Lord, I don't know.

Q. Would it surprise you if I told you you testified to that before?

A. I simply don't remember. It could be. I doubt that it was 70, but there were two legal exercises, the criminal

trial, and then there was a civil exercise that I never testified to but did do an extensive deposition. So, I guess if you lumped all of the time and everything, it could reach that.

Q. And that was ten years ago; right?

A. I guess it was now.

Q. And you testified in a case where a John Pozefsky (phonetic) was on trial for the aggravated murder of his infant daughter, an Ellie Pozefsky. Do you recall that?

A. You got to give me a little more. What city, what state, where?

Q. Sure. You testified that Pozefsky, 30, who was on trial in Cuyahoga County Common Police Court for an aggravated murder of the March 29th death of his infant daughter -- and this was written in 1999. Do you recall that?

A. This would have been -- in what county or jurisdiction?

Q. In Cuyahoga County?

A. Cuyahoga County.

Q. Ohio?

A. Ohio, yes. Okay. I barely remember -- I remember the name, and I remember being there, but not much else.

Q. Well, do you recall that John Pozefsky, who was on trial for the aggravated murder of his infant daughter, you testified that she died from a birth complication, not from

blunt force trauma?

A. I don't remember.

Q. You don't remember?

A. I do not remember the facts of the case.

Q. If I showed you a newspaper article, would that help you?

A. This is a case that, like everything else, took hours and hours of preparation. I was on the stand probably several hours. This is more than ten years ago or about ten years ago. A one-pager would not help me recover the substance of the case.

Q. All right. Well, do you disagree with me that you may have found a birth complication and not blunt force trauma?

A. If you say so, that may be so. I simply don't remember. When the cases are over, there are plenty of others that come along. There's lots of other work going on, and I tend not to retain, unless it's an accident somehow, the individual details, and I certainly wouldn't want to be held to details on that one.

Q. Okay. Well, Doctor, as you sit here today, in the last five years, in cases you testified in that have involved the issue of a subdural hematoma, can you tell me the name of a case where you did not find an existing subdural hematoma?

A. No. I can't remember. I mean, I have said maybe 75, 80 percent do have some underlying aging on the lesion, but I

simply can't, with all those cases, recall the names and dates and places like that. My memory is not that good.

Q. Thank you. You answered my question. Is it fair to say your specialty is in the area of diseases of the central nervous system?

A. Correct.

Q. And a lot of your work is looking at areas such as tumors, viruses, epilepsy and the nervous system?

A. That's fair.

Q. Is that fair to say?

A. Yes.

Q. And you have not written many articles dealing with the treatment of children who are the victims of abuse; have you?

A. The treatment? Certainly not.

Q. And, in fact, of the 105 articles that are listed on your CV, only four of them have the word "children" in the title. Would that be fair to say?

A. Lord, I don't know. I have certainly written --

Q. Would you like an opportunity to review?

A. Let me look at it. The titles of the articles? I don't know.

Q. Actually, let me get the one that is in evidence.

MS. BOOK: Judge, may I approach?

THE COURT: Of course.

Q. Doctor, if you could look over your 105 articles for a moment and tell me how many of them have the word "children" or "infant" or "baby" or "pediatric" in the title?

A. There's an article, or Citation 99, 2006, talking about the shaken baby syndrome, confessions and admissions. It says "baby" in there, but it doesn't say child.

Q. So, that's two.

A. Then there's 98, which is "Case analysis of brain injured, admittedly shaken babies" -- Or "infant," and that doesn't have the "child" in it, but it's a baby.

Q. I'm asking about the ones in the title, Doctor.

A. "Occult/asymptomatic cranial injury in infancy." That's one. Well, there's one that goes way back on renal cell cancer in children. That would be 1970.

Q. So, did you find four, Doctor?

A. I think that's probably it.

Q. Okay. So, four of 105 articles that you have written have the word "children" in the title?

A. Children, infant, babies in the title. That does not talk about the content.

Q. And you have never written about recognizing and treating children with head injuries; have you?

A. No. I'm not a treating physician. That isn't what I write about.

Q. Right. Because you never have treated a child during

your career; correct?

A. With head injuries, I have no memory, beyond medical school, of having done so.

Q. Okay. And when you come to work day in and day out now since you have retired, you don't look at CT scans of a child, unless they are dealing with a case you have been retained in; correct?

A. That's usually the circumstance. I always request imaging studies, and many times they are available, and I read them.

Q. All right. And when was the last time you performed a life saving effort on a child?

A. A what?

Q. Life saving efforts on a child?

A. Never. I have never done that.

Q. And is it fair to say you never met [redacted]

A. I never did.

Q. You never treated him?

A. I never saw him, didn't know him.

Q. And you didn't make cuttings in [redacted] brain?

A. I did not. He was not available.

Q. Doctor, would you agree with me that you previously wrote the following: "It is sometimes an issue at trial, often exploited by defense attorneys, that the apparent lack of external evidence of an injury in connection with a massive

intracranial trauma somehow correlates better with an accidental injury, rather than a willful one. This interpretation is fallacious and should not be conceded." Did you previously write that, Doctor?

A. If you would tell me where that appeared, I would agree with you.

Q. It appeared in your first edition of Forensic Neuropathology.

A. That doesn't surprise me.

Q. At Page 338.

A. Yes. It's possible I wrote that, yes.

Q. Okay. Now, let's talk about the retinal hemorrhage in this case. You have never been declared an expert in dealing with treatment of the eyes; correct?

A. No. I'm not an ophthalmologist. I never did any of that.

Q. Never treated a patient for an eye disorder?

A. As a medical student, but not in a normal circumstance.

Q. So, some 45 years ago, perhaps, but not subsequently?

A. Probably. I guess my kids had conjunctivitis. I maybe gave them some eye drops. That's it.

Q. Okay. So, forty-five years ago or a member of your family; correct?

A. That's right.

Q. Are retinal hemorrhages indicative of child abuse?

A. No.

Q. Well, have you previously testified that they are highly correlative of child abuse?

A. There is a strong correlation in abusive head injury in children. A large percentage of these babies will have retinal hemorrhages. I have written about it. I may well have testified about that.

Q. So, in fact, when you have a child abuse case, you are much more likely to find retinal hemorrhaging than when you don't have a child abuse case. Is that correct?

A. I don't know that that's true. Certainly, in the known abuse cases, the instances of retinal hemorrhages in some series is a hundred percent. The issue comes of how do you know it's an abusive injury. Then you have other cases, again, by the same token, how do you know what it really is; but the fact is pediatric head injury is attended by a very high percentage of infants that have retinal hemorrhages.

Q. Doctor, do you previously recall, in the People v. Morinda case in 2004, you were asked by the prosecutor: "Okay. So, in fact, when you have a child abuse case, you are much more likely to find retinal hemorrhaging than when you don't have a child abuse case?" And you answered: "Yes, with cranial head injury in infancy, yes, that's true."

A. Using the literature reports, that would probably be

so, yes.

Q. And in this case, it would be fair to say that we have extensive retinal hemorrhaging; right?

A. I think that is so, yes.

Q. In both eyes?

A. I believe it, yes.

Q. Let's talk about how you age subdural hematomas for a moment.

A. Okay.

Q. You age subdurals based on studies of adult brains. Would you agree with that?

A. The study that provides a microscopic road map to do that was done on, I think, 151 adult subdural hematomas whose age was known.

Q. Okay.

A. And no comparable study has ever been done in children.

Q. No comparable study has ever been done in children?

A. Or published. Now, that doesn't mean that those of us who are looking at material like this aren't constantly trying to find cases that there is a time frame to weigh the, you know, the veracity of the method to see if it's way off somewhere or if it's on the money, so to speak, and I haven't found that it is. I haven't found anything to throw that method out the window.

Q. Okay. So, you haven't found anything to indicate that a child's brain -- that you could age subdurals of a child's brain the same way you could have in an adult's brain?

A. I think it would be very, very close.

Q. All right. So, would you agree with me, Doctor, that an adult's brain and a child's brain is not really similar?

A. There are many, many differences, of course; whether that translates down to how fast healing processes in the dura work, I'm sure that has to be resolved yet.

Q. And a child's brain is much more fragile. Would you agree with that?

A. It depends what you mean. In some respects, a child's brain is more resilient to insults than an adult, and we need more, you know, more definition of what you are talking about.

Q. Well, would you agree with me that a baby's skull is not formed after birth?

A. That's true.

Q. Sutures are opened up?

A. It's softer. It's malleable. The sutures can open; adult's cannot.

Q. So, that's a difference; right?

A. Yes, it is. There are many differences.

Q. And there's no hard scientific data to suggest that a baby's brain clots at the same rate as an adult brain, other

than your own anecdotal experience. Is that correct?

A. Ask me that question again.

Q. Sure. There's no hard scientific data to suggest that a baby's brain clots at the same rate as an adult brain, other than your own anecdotal experience; correct?

A. That it clots, C-L-O-T-S?

Q. Yes.

A. Well, a brain doesn't clot. I don't know what we are talking about. I'm confused by that.

Q. All right. Maybe I can clear this up a little bit. Do you recall, in the People v. Morinda case, you were asked: "And there's absolutely no good, hard scientific data to suggest that a baby's brain clots in the same -- at the same rate as adult brain, other than your own sort of anecdotal experience?" And you answered: "I'm unaware of any studies that have used baby's subdurals and approached it the same way, to applying, dating and applying characteristics on it. I mean, people do it all the time, but it's not published in quite the same way. You are right."

A. I see where you are getting to. The question was posed in a confusing way. The things that produce subdural hematomas in adults and older people tend to be of a different character than we see in children, and the mechanisms are probably quite different. This is data that's emerging now, new studies that are going on. So, there are some important

differences. In terms of the healing process, the aging and dating process, there are certain limits that cells, regardless of whether they are in adults or old people or young, can only do things so quickly. And how accurate, what the variation is in the aging and dating for infantile subdurals and adults has yet to be defined, but it is probably not going to be unexpected.

In other words, if we say, "You see these things in the slide," and it means that the clot is three to five days old, to suddenly put it way out of that frame or way before it in children, I have not seen any cases that would cause me to say it's remarkably different.

Q. But Doctor, with respect to a baby's brain, you are working on an assumption. Is that not correct?

A. We have to extrapolate the data we have and do the best we can, and I have no reason to say, "Throw all the data out the window. I don't know what to do."

Q. But Doctor, you are working on an assumption; correct?

A. Yes.

Q. Now, let's talk about your new book for a moment. On Page 273 of your new book, under "subdural hematoma and subdural infusions," you have written, "neonatal subdural hematoma is said to be uncommon to rare with only nine cases reported as of 1978." Is that published there?

A. That's what I wrote, yes.

Q. And you went on to say, "but others have indicated that subdural hematomas, often in the posterior fossa, though uncommon, are not rare"?

A. That's right.

Q. So, Doctor, is it fair to say that neonatal subdural hematoma is, at best, uncommon?

A. Yes, at best. It turns out that there's been recent publications that have studied that, and it appears it's a lot more common than we thought, and some of that might supplant that. I don't know what the most recent --

Q. This book was published in 2009; was it not?

A. Yes. It was published in 2009, but the writing of this goes back a couple of years. You can't always have everything.

Q. Okay. Well, this was put out this year, though; right?

A. Yes. It was available in November, but they say 2009. So, that's it.

Q. And it goes on to say that, "in most cases, most such cases occur in connection with difficult deliveries involving the use of forceps, vacuum extraction and cesarean sections performed once the birthing process has begun"?

A. Those were important risk factors that were known then, and some additional ones have appeared since.

Q. Did you know that [redacted] [redacted] mother, Wilhemina Hicks, said he was born a vaginal delivery?

A. That's correct. That's what I understand.

Q. And then it goes on to say, "a typical history is a difficult delivery with the infant appearing intact at birth, but then, in the course of hours or days, deteriorating." Does it say that?

A. That's a common scenario, correct.

Q. We don't have any evidence of [redacted] in a matter of hours or days, deteriorating; do we?

A. No.

Q. And you go on to say that, "surgical intervention may be life saving." [redacted] didn't need to have any surgery here, now; did he?

A. No.

Q. And you say, "subdural bleeding may be acute and produce immediate symptoms, including seizure, coma, respiratory distress and death." We didn't have evidence of any of these here; did we?

A. No. He didn't present that way in the neonatal period, no, not at all.

Q. And then you go on to say a few sentences down, "episodes of bleeding evolve slowly and only eventually, usually within a few weeks."

A. That's right.

Q. "Produce symptoms, which can include all of the above, as well as paralysis, abnormal movements and reflexes, nausea and projectile vomiting"?

A. That's often how they present when they do.

Q. Okay. So, first of all, [redacted] didn't present anything within a few weeks; did he?

A. Not until he was four months old, no.

Q. And he never had symptoms of paralysis; did he?

A. He didn't present that way. He presented unconscious and comatose and not breathing.

Q. Fair to say he didn't exhibit any of these symptoms; right?

A. Well, he didn't present with paralysis or seizures.

Q. And -- I mean, the way I heard it on your direct case, it sounds like this was a pretty sick baby; right?

A. A very sick baby.

Q. Who had some unusual complications?

A. A very sick baby on admission at the age of four months.

Q. Well, from what I hear, Doctor, it sounds like he was a pretty sick baby since he was born?

A. I don't have that. He remained in the hospital for a period of time, which is typical, and was treated for possible sepsis, which apparently he didn't have. I don't know how sick a baby he was, enough that the hospital wanted to keep him for

a while.

Q. You say he had layers upon layers upon layers of these subdural hematomas. They are not healthy; are they?

A. That's right, that took months to develop, long after this child was released from the hospital.

Q. And if I heard it correctly on direct, you said that [redacted] had had a heart attack about a month before the autopsy?

A. Histologically and microscopically in the heart, yes, I would say so.

Q. So, this baby had a heart attack around three months. Is that your testimony?

A. At least that, yes, maybe before.

Q. And you know on September 13, 2008, Wilhemina Hicks took her baby to the emergency room because he had a slight rash on his face; right?

A. I don't remember that. I don't know.

Q. Okay. Well, wouldn't it be fair to say, if this child experienced a heart attack, someone was going to take him somewhere?

A. There's a lot of damage that occurs, and heart attacks occur and nobody knows they occurred.

Q. Do you agree that it is a fact that the vast majority of seriously head injured infants and children, when automobile and other major accidental trauma can be ruled out, acquired

their injuries as a result of abuse?

A. I wrote that in the earlier edition of my book, and similar statements have been revised to take a broader view of those things.

Q. Well, you've said that in the past; haven't you, Doctor?

A. Pardon me?

Q. You have said that in the past, though; haven't you, Doctor?

A. I have, sure.

Q. The vast majority of these children were abused.

A. That is what I said. I would not write that today, and I haven't written it today.

Q. Would you agree that, as a general rule, most children don't die from intracranial bleeding associated with vaginal birth?

A. That's true.

Q. And most children who do experience intracranial bleeding are asymptomatic; correct?

A. That's true.

Q. And that means they don't exhibit any signs or symptoms of this intracranial bleeding; correct?

A. That's correct.

Q. And most of these children, they clear up on their own without any type of medical intervention; correct?

A. They appear to solve their problems themselves somehow. Some don't, but most do.

Q. And if they do rebleed, how often is it clinically significant?

A. Well, it's hard to -- it becomes clinically significant when you've got somebody -- a baby coming in with symptoms that then are worked up and are shown to be subdurals and bleeding and so forth. That's clinically significant. They don't know that until they have actually been discovered.

Q. All right. Well, if 25 or 40 percent of children are born with intracranial bleeding, is it a fact that most of those are never clinically significant?

A. Quite correct.

Q. And normally, they wouldn't impact the child at all; right?

A. Well, as far as we know. They seem to pass through this period and -- the only way we know there's percentages like that is studies where ultrasounds and CT scans and other things have been done on a general population, to pick them up, and that's how we would know that there are that many. We wouldn't know otherwise.

Q. Here again, Doctor, is it fair to say you are sort of working on an assumption?

A. Right.

Q. And you say that they can bleed with minor trauma or

no trauma; right?

A. Say that again. I'm sorry.

Q. That intracranial bleeding or subdural hematomas, they can rebleed with minor trauma or no trauma; correct?

A. True.

Q. And when an infant is first born, they have a very wide anterior fontanelle; correct?

A. Most do, yes.

Q. And that's right up here (indicating)?

A. Correct.

Q. And it makes the top part of the brain pretty easy to view on an ultrasound; does it not?

A. Yes. Quite frequently, that's where they will do this. The ultrasonic instrument will be put up there, and that means, then, you are not having to look through bone to get a look at the brain.

Q. Okay. And you even said on direct that that's usually the method that people use when a newborn gets one done; correct?

A. Yes. There's lots of variation in instrument and the technology and the competence and all that. These are not uniform studies, by any means.

Q. Okay. And [redacted] had one of those done; right?

A. He had one of these done - for whatever reason, I'm not clear - but it was negative.

Q. No intracranial bleeding?

A. Pardon me?

Q. No intracranial bleeding; correct?

A. Well, that's what the report says. They found nothing wrong.

Q. No subdural hematoma; correct?

A. They didn't say that. They just said this is a normal study.

Q. Well, wouldn't that imply, then, that there are no subdural hematomas?

A. That would be implied, but not necessarily so, because we know there's an error rate. They just say it's a normal study.

Q. Okay. And this was done ten days after his birth; right?

A. That's about right, yes.

Q. Okay. And where were the majority of [redacted] subdural hematomas located at his autopsy?

A. Everywhere. He had them all over the hemispheres of the brain, the base of the skull, virtually everywhere.

Q. Fair to say up here, as well, on his anterior fontanelle?

A. Everywhere, everywhere.

Q. So, that would have been pretty easy to see on an ultrasound; wouldn't it have?

A. That would be -- you can see all of these on the CT. And as I said, they are everywhere.

Q. Doctor, did you plot out on a growth chart the growth of [redacted] head from birth until his admission on September 21st?

A. I didn't have those numbers. I had the numbers that -- it was 49 and something inches, which I think is kind of big, for the autopsy.

Q. Well, did you review in Dr. Jenny's testimony that she did, in fact, plot out the infant's brain on a growth chart from birth until September 21st, and that until that hospital admission, his growth rate was appropriate and normal?

A. That I would like to see. I don't recall seeing that. That's something I often look for, because children with problems like this often do have an increasing head circumference, and I just don't remember.

Q. I don't have Dr. Jenny's testimony, but I know you did. Do you recall seeing that in there?

A. I do not. I can't recall it.

Q. Well, would you expect to see an increased growth rate if there was, in fact, a growing subdural hematoma inside the infant's brain?

A. I would expect to see that. Some children somehow -- either the brain is shrunken, and somehow head enlargement is not needed to compensate. I don't have a good explanation, but

when you see children with CT scans that look like that, usually their heads are in the 95th percentile of circumference.

Q. Oh, well, on the day that that was taken, certainly, Dr. Jenny said his head was larger on that date, on September 21st, but up until that event, it was growing at a normal rate?

A. I don't know that, and that is a piece of information I would like to know.

Q. So, that would be pretty unusual, if he had these subdural hematomas since birth, that it would be growing at a normal rate until September 21st; right?

A. I don't know that you could say that. I would say I would, more likely than not, expect the head, wherever the kid was born, on the 50th percentile or 30th or whatever happened, you should ride that curve or stay pretty close to it. And most of the kids that have what this kid did would traverse that; they would accelerate head circumference growth at the expense of something else.

Q. Okay. You would agree he would have a bigger head?

A. I would expect that.

Q. And if someone did have an existing subdural hematoma, you would agree that a greater intensity of trauma could lead to a greater chance of a rebleed. Is that correct?

A. Children with these fluid collections appear to be

more vulnerable to head trauma than those who don't have them and, therefore, the propensity for additional bleeding and the symptoms that come from that. There have been cases talked about and reported like that.

Q. So, your answer is yes?

A. Yes.

Q. Okay. And is it common that people with significant head trauma develop complications?

A. Yes, always.

Q. Okay. And would you agree with me that the brain sends messages through the central nervous system?

A. Well, that's what it does. The brain generates nervous impulses and processes information coming in and sends impulses going out, enabling you to move and do all of that. Yes. That's what the brain does.

Q. So, the brain is probably very important in the function of your body; correct?

A. Yes. You can't -- if you don't have one, you are not alive.

Q. Right, exactly.

A. You are dead.

Q. Exactly. So, if you were to have trauma in your brain, obviously, that's going to decrease your body's ability to work. Is that correct?

A. It depends on what stresses you are talking about.

If there's brain damage, quite clearly, the organisms' ability to respond to stress would be diminished, but it can be in very specific ways and not necessarily general ways. So, we would need more information to go further with that.

Q. But generally, you would agree with that statement; wouldn't you?

A. Again, I can't be nonspecific. I deal in the world of specifics. So, I'm saying, if the brain doesn't work, you are diminished; obviously, you are, but in not always predictable ways.

Q. You agree diminished?

A. Okay.

Q. Okay. And is it common that someone with a head trauma might develop pneumonia?

A. Yes. If their level of consciousness and functioning is impeded, they can, especially if they can't cough.

Q. Right. Because if you were --

A. If they can't --

Q. I'm sorry, Doctor.

A. If they can't cough and protect their airway, they would be vulnerable to pneumonia.

Q. Okay. And, again, if you do lose that period of consciousness and you become more vulnerable, Doctor, isn't it possible that you could aspirate?

A. Of course.

Q. And if you aspirate, it's possible that you are not going to be able to clear your airways. Isn't that correct?

A. That's possible.

Q. And that you might be more susceptible to bacterial diseases or anything else?

A. That's true.

Q. Okay. And you agree with me that, if someone is on a ventilator for two days, they're certainly most likely going to develop pneumonia?

A. Many individuals who are on artificial ventilation will develop some element of pneumonia while on artificial respiration. They will.

Q. And new trauma could potentially lead to fresh bleeding around the edges of a subdural hematoma --

A. Yes.

Q. -- that wasn't damaged before?

A. Yes. That's true.

Q. So, even if you did, let's say, have an existing subdural hematoma, new trauma could cause new fresh bleeding?

A. That's been demonstrated.

Q. Okay. And in an area where it wasn't damaged before; correct?

A. It's conceivable.

Q. And it's medically possible to have both a fresh bleed and a rebleed at the same time; correct?

A. I wouldn't disagree with that. That's okay.

Q. And you say a baby thrown onto a soft mattress, that's not enough force to cause a subdural?

A. It appears not. As I said before, these kinds of scenarios have been measured and peak G-forces have been measured and compared with injury threshold and appears below those.

Q. But you are not a biomechanical engineer, now; are you?

A. I am not, no.

Q. And you would agree with me that there's no studies of infants thrown onto a bed to test this theory; correct?

A. As living babies, no.

Q. So, again, Doctor, would you agree with me that, again, you are working on an assumption?

A. We are using the best knowledge and statistical information that we have, and I'm just saying that the thresholds or the peak G-forces that can be generated by scenarios you have talked about do not appear to be sufficient to produce a subdural hematoma.

Q. But again, Doctor, this was never tested on real infants, obviously?

MS. EFFMAN: Objection, asked and answered.

THE COURT: Overruled.

Q. Correct?

A. One has to be careful about assumptions. You just say what evidence do we have to go one step further and make a statement. We can't. We just say it doesn't appear that we are reaching an injury threshold by a scenario such that you have talked about. Is it possible that there could be somebody who would be injured by that? Of course, it's possible. We just don't know.

Q. My question is: You don't have any studies about infants being thrown onto a bed; correct?

A. As far as I'm aware, there are none that have reported incidents like this and then followed up by saying: "Here, look what happened."

Q. Now, Doctor, you said that this could not possibly have caused this child's trauma; correct?

A. I'm saying that this child, the evidence, the severe head trauma that occurred in this child is very low.

Q. Well, Doctor, would it be helpful for you to see the Defendant demonstrating how he threw his child?

A. No. It wouldn't help at all. I'm not -- I can't calculate G-forces. I cannot do those things here. All that has been done by other people, and demonstrations -- I'm probably not qualified to properly evaluate that. You would need somebody other than me.

Q. So, therefore, would you agree with me that you are not properly qualified to give an opinion as to whether this

Defendant, throwing his baby onto a mattress three times in four days from above his head, weighing almost 500 pounds, down onto this mattress -- are you qualified to say that that would not cause trauma?

A. I don't know. That would have to be absolutely tested, and I'm saying scenarios like that have been measured, and it appears that the peak G-forces that are capable of being generated that way are not sufficient to produce subdural hematomas, as far as we know.

Q. So, you are not qualified to give that opinion; are you, Doctor?

A. I could not make a judgment, based on the Defendant's statements, of whether that represents reality or not.

Q. Well, is that conduct you would advise parents to engage in?

A. Excuse me again?

Q. Is that conduct you would advise parents to engage in?

MS. EFFMAN: I object. That's argumentative, Judge.

THE COURT: Overruled.

Q. Would you advise parents to engage in that sort of conduct?

A. I don't advise parents to be stressing children in manners like that. I think that's risky behavior, and I

certainly don't recommend doing that.

Q. Risky of what?

A. What's that?

Q. Risky of what?

A. I'm sorry?

Q. What is that risky of, Doctor? You said it's risky behavior?

A. Well, you are introducing accelerated forces into a baby. If you missed and hit the wall or knocked off the bed or something, now you are into a whole different situation. All I can say is that is risky behavior, and I think that is common sense.

Q. And could lead to trauma?

A. It may lead to trauma.

MS. BOOK: Nothing further.

THE COURT: Ms. Effman, before you -- do you have some redirect?

MS. EFFMAN: Very, very short. Maybe we could take a break to stretch our legs. Would you like to take, maybe, five minutes?

THE COURT: Members of the jury, we will take a break for about ten minutes. Please do not discuss this case among yourselves or with anyone else. Do not read or listen to any media accounts of this case. Do not visit any premises involved in this case. Do not conduct any

research regarding this case. Do not request or accept any payment in return for supplying any information regarding this case. Do not make any judgments regarding this trial until you have heard all of the evidence and been instructed as to the law. And if anyone attempts to improperly influence you, please report it directly to me without discussing it with anyone else. We will take a break for ten minutes. Thank you.

(Jury excused.)

THE COURT: Before we break, Doctor, I want to remind you again during the break, since you are a sworn witness, please do not discuss your testimony. Thank you, Doctor.

(Brief recess taken.)

(Whereupon, the jury entered the courtroom.)

THE COURT: Please be seated.

REDIRECT EXAMINATION

BY MS. EFFMAN:

Q. Just a few questions on redirect briefly. Referring you to the autopsy report which is already in evidence in this case, typically, when you do an autopsy report, Doctor, do you list what documents that you reviewed as part of your review of a case, if you are the one actually doing the autopsy? Is that standard procedure?

A. Usually not. Occasionally, in the preambles, so to

speak, the autopsy pathologist may do that, but my experience says, usually, they don't. They will have something about an investigator, if there's a scene investigation, or if there's a little bit of hospital, they may give some preamble to their report, but usually, they don't go into detail.

Q. Now, Ms. Book asked you during cross-examination whether or not you -- whether Dr. Sikirica indicated in his report that he had reviewed a statement from a Wilhemina Hicks as part of writing his report. Are you aware of whether or not his report lists that he reviewed Wilhemina Hicks' statement?

A. I don't remember, no.

Q. Doctor, would referring to the autopsy report refresh your recollection?

MS. BOOK: Your Honor, I'm going to object to this question. That was not my question. The question I asked was whether he knew if Dr. Sikirica reviewed these things, not whether he elicited them in his report.

THE COURT: What is the question pending right now?

MS. EFFMAN: The question pending is -- Ms. Book seemed to indicate on cross-examination that Dr. Sikirica indicated in his report that he read Wilhemina Hicks' statement. In fact, the report doesn't reflect that. I want to ask the Doctor to refer to the report, and does it mention Wilhemina Hicks' statement as being one of the

things he reviewed in writing his report.

MS. BOOK: I asked, Doctor, do you know that Dr. Sikirica read the statement of the mother, Wilhemina Hicks.

THE COURT: I will allow the -- I will overrule the objection and allow it.

Q. Would referring to the autopsy report refresh your recollection, Doctor?

A. Yes, it would.

Q. Reading on Page 5 of the record -- I would ask that you review that, and when you have had a chance to look at that, please look up, Doctor.

A. Okay. I've got that.

Q. Isn't it true, Doctor, that report does not indicate that he reviewed Wilhemina Hicks' statement as part of these autopsy reports?

A. It's not specific. It says copies of medical records were obtained, copies of the hospital --

Q. Let me stop you right there, Doctor. Does that report state he reviewed Wilhemina Hicks' statement?

A. No, it doesn't.

Q. Thank you, Doctor. In fact, in his report, Dr. Sikirica notes that there is evidence of chronic subdural hemorrhage; correct?

A. Yes.

Q. In fact, he notes that on a dura section -- which is one of the things you reviewed as part of this case; correct?

A. Correct.

Q. Are you aware that in this case that Drs. Edge and Waldman have testified that the subdural hematoma could be weeks or months old. Are you aware of that, Doctor?

A. Yes.

Q. And Doctor, as a neuropathologist, just like Dr. Sikirica, neither one of you treat patients; correct?

A. I certainly don't, and it appears that Dr. Sikirica does not, either, but as my -- he could have a practice on the side, and he probably would be legally able to do so in New York. I don't know if he does. I think it would be unlikely.

Q. Ms. Book asked you several things about a book you had written, the first edition of your book, and you made certain comments to Ms. Book; that you revised some of the things in your second edition. Can you explain why you change certain comments from the first edition to the second edition, Doctor?

A. Sure. In the 20 years that elapsed, my viewpoints on many things have changed in response to literature and new information, and it would be totally inappropriate in a new writing exercise to ignore the wheels of progress and the knowledge and facts that have emerged since the last one. To repeat the old stuff would be professionally ridiculous. The

world is flat. Why continue to write about that when you know it's not true? So, obviously, everybody goes on a learning curve. So do I. And in writing a book, one must take awareness of the movement of thought, knowledge, information and deal with that, which I did.

Q. And would that be because science, as many things, evolves over time; correct?

A. Absolutely. More information has come in that spoke to or impinged upon some important things in that old book and, frankly, in view of new information, is wrong.

Q. And how much time elapsed or spanned between the first edition and the second edition?

A. About 20 years.

Q. And once you finish writing a book and you submit it to publisher, what is the turnaround time in actually having the book published, on the shelf, ready to be purchased or sold to people or stores?

A. In this one, modern publishing is amazing; got a manuscript to the publishers, and I think it was about four months later, we had a book. This is with proofreading and everything. So, many times, they sit there and sit there and sit there. I have had that experience. But this one was as fast and expeditious as I know.

Q. And Doctor, Ms. Book referred to Page 273 of your book on the topic of subdural hematomas and subdural adhesions.

At least you have had two purchases of your book as a result of this case, Doctor. But she read to you a portion of the page, but what she did not finish reading to you is -- under the section, Doctor, do you state that, "In addition to birth trauma and molding of the head, which can cause subdural hematomas, bleeding disorders and sepsis and vascular anomalies may also cause subdural bleeding." Did you write that in your book?

A. Yes, right. I should also point out that in the book, there are a number of places through the book where subdural hematomas are discussed, not just in one chapter, and because it's a complicated subject, there are many aspects of this process which were discussed and talked about that I hope paint a fair picture of what this entity is about.

Q. In the chest x-rays that you have been given to review from one taken at Samaritan Hospital, one taken at Albany Medical Center, isn't it true, in fact, there's no evidence of aspiration in either of those x-rays? Is that correct, Doctor?

MS. BOOK: Objection, leading.

THE COURT: Sustained.

Q. Doctor, are you aware of any evidence in any of the x-rays in this case, of the chest, of any evidence of aspiration?

A. None was reported.

Q. And is there any evidence in the autopsy report of aspiration?

A. I don't believe those words were used. And in looking at the evidence, the kind of lung changes that were seen in this autopsy would not be typical for aspiration, which means pulmonary hemorrhage from the acid that comes from the stomach, and I didn't see any evidence of that.

Q. Ms. Book asked you some questions about fresh bleeding. Can fresh bleeding be caused by problems with coagulopathy?

A. Fresh bleeding anywhere, subdural included.

Q. And as discussed earlier, Doctor, did this child have problems with coagulopathy?

A. Of course, in spades, very much so.

Q. Is that, in fact, documented in the records of Albany Medical Center?

A. Correct.

Q. And, in fact, isn't it true, Doctor, that the CAT scan you displayed here today shows very little evidence of bleeding?

A. Yes. There is evidence of chronic bleeding and the reactions and repair from that, but the amount of actual recent bleeding - that is, within some days of death - is really only in the right posterior, kind of puddled there, and that wouldn't amount to very much.

Q. And in terms of posterior fossa, Doctor, does an ultrasound show bleeding in the posterior fossa at ten days of life?

A. None was reported. The study was said to be within normal limits.

Q. In fact, would an ultrasound, at ten days of life, would that equipment or that procedure cover the area of the posterior fossa?

A. Sometimes imaging down in that area is kind of at the end of the food chain, so to speak. It's not closest to the sensor, and it's conceivable that things could be missed there. I'm not an ultrasonographer. So, I don't know the limits of the technology, other than having heard people talk about it and read about it and seen these studies. As I indicated, it's possible to have a so-called negative study but still have something that proved to be there.

Q. And certainly, Doctor, bleeding in the posterior fossa, is that a kind of bleeding that accompanies some at vaginal childbirth?

A. Say that again. I'm sorry.

Q. In terms of bleeding during childbirth, is the posterior fossa one of the places where you can find bleeding in the brain or in the intracranial area during childbirth?

A. That's correct because, apparently, the way the dura folds around and forms the tentorium, the hole where the brain

stem goes through, is an area that stresses of molding, and deformation of the skull could impinge there, and that's where bleeding seems to be when it is observed.

Q. Can subdural bleeding due to gravity flow into the posterior fossa?

A. Sure. It will get there. The problem is you have bleeding in the dura itself, which can go this way, leak out that way or go in the other direction, ultimately dumping some blood into the subdural compartment that can redistribute itself in lots of places.

Q. In terms of slides that you were shown, the microscopic section you showed in this trial, in terms of the layers of the chronic subdural hematoma --

A. Right.

Q. In terms of the age of that based on the number of layers, Doctor, how old is that chronic subdural hematoma?

A. Takes you back pretty close to birth. The problem is, we don't have a good way to say that's exactly three months, four days, whatever it is. The layers, though, each one of those takes several weeks to reach that level of maturity, and you add them up; you are there. You are back in the perinatal period.

Q. Since we know we have a four-month-old child we are dealing with, certainly, Doctor, several months takes us to the time of birth; correct?

A. Yes.

MS. EFFMAN: One moment, Judge. Okay. No further questions.

RECROSS-EXAMINATION

BY MS. BOOK:

Q. Just a couple questions. Doctor, the autopsy report, it doesn't say the subdural hematoma went back to birth from Dr. Sikirica, now; does it?

A. I don't think that was -- he made any such statement. He just simply mentioned there was chronicity, and that was it.

Q. You read his testimony; correct?

A. Yes.

Q. Do you recall reading he said it went back two months at most?

A. I'm trying to remember the words, and I don't -- I think he was asked a question like that and said it was possible.

Q. Okay. And you said there was no aspiration reported. Is that correct?

A. Well, at least -- it's certainly not mentioned on the radiology reports and, frankly, I don't recall it being mentioned anywhere.

Q. But you -- well, was it mentioned in Dr. Sikirica's testimony?

A. I know he was of the opinion that that may be

important, and I don't know the evidence for it.

Q. And to be clear, part of that history comes from the parents, correct, as to whether or not aspiration may have occurred?

A. Well, sometimes. I mean, if there's been vomiting and, you know, formulas coming out of nose and then there's coughing and choking, I guess one could impute that aspiration had occurred. But more often, that's a clinical judgment and can occur, certainly, in an acute life-threatening event, which is what happened to this child, which is how you describe it. Aspiration can occur there. I just didn't see any evidence of it. That's all.

Q. And, likely, it would have occurred at home prior to coming to the hospital. Is that correct?

A. Yes. I'm trying to -- ask me that again. I want to be sure.

Q. Likely, the aspiration would have occurred at home prior to coming to the hospital; correct?

A. It certainly can.

Q. Okay. And just to be clear, you didn't read the one-page statement of the father about the events of [redacted] right?

A. Right.

Q. You didn't read the ten-page statement; right?

A. You mean the emergency --

Q. No. I'm talking about the child's father's ten-page version of what happened, to include that, after one of the times he threw the baby down on the bed, the baby was wheezing badly?

A. Yes, I recall that.

Q. You didn't read that; did you?

A. I recall that being made but, again, I don't know what that means, whether that means there's been some aspiration or not.

Q. So, you are not sure, fair to say, whether or not aspiration occurred?

A. Right.

Q. And you said there was really not a lot of blood noted in the baby's brain. Is that what you said?

A. There was what? Say again. I'm sorry.

Q. Not -- there wasn't much blood noted in the baby's brain?

A. Yes, correct, correct.

Q. So, would you agree with me that the autopsy report says there was 60 milliliters of subdural blood that came out?

A. That's the fluid and the bloody fluid; certainly, 60 ml's were collected, and that wouldn't be out of keeping with what was in the fluid collections. Now, whether that was all blood, blood with fluid -- I mean, they say blood but --

Q. Well, Dr. Sikirica, who was actually there and

suctioned the blood out, correct, he recorded it as blood, not bloody fluid. Is that right?

A. Well, then, this is material that would have had to have accumulated after the child was admitted to the hospital, because it's not there within three hours of admission.

Q. So that your testimony is that that's not blood in the CAT scan?

A. There is some small amount that I pointed out, would be blood-tinged fluid. I'm sure if one were to collect that, and if there were 60 milliliters of blood in this child's head at the time of autopsy, it had to have come after that CAT scan was taken.

Q. Well, you said you read Dr. Waldman's testimony; right?

A. I read his transcript, yes.

Q. And were you familiar with the fact that Dr. Waldman, a neurosurgeon, said that that was blood in that child's head on the CAT scan, not a fluid?

A. Well, I would certainly want to ask him a few questions; point the blood out to me. What would it look like if it were a hundred percent blood or five percent? And that would be an issue that I think would need to be cleared up. If he said there was a lot of blood in this kid's head, I would respectfully disagree. It's not there.

Q. So, your answer is yes; you are familiar with the

fact that Dr. Waldman, a neurosurgeon, said that was blood?

A. If he made that statement and said that this kid's head had blood in it, I would beg to differ.

MS. BOOK: Thank you.

REDIRECT EXAMINATION

BY MS. EFFMAN:

Q. Doctor, there's no history in the record -- strike that. Doctor, there's no history from the mother, in the records of Samaritan Hospital or Albany Medical Center, that she reported the child aspirated. Is that correct?

MS. BOOK: Objection, leading.

THE COURT: Sustained.

Q. Doctor, did you see any reports of the Samaritan Hospital or Albany Medical Center records concerning the mother making any reports about aspirating?

A. No.

Q. And in your review of the records from Samaritan Hospital and Albany Medical Center, did you see any reports whereby the mother reported or complained the child had been wheezing?

A. No.

MS. EFFMAN: No further questions.

RECROSS EXAMINATION

BY MS. BOOK:

Q. And Doctor, did you know that the Defendant was alone

with the baby at the time that he was throwing him around on the bed?

MS. EFFMAN: I would object to the form of that question, Judge.

THE COURT: Sustained.

Q. Doctor, did you know that when Mr. Thomas admits that he was throwing the baby down on the bed three times within four days, that he was alone, and that the mother was not in the room?

MS. EFFMAN: Same objection, Judge.

THE COURT: Overruled this time.

A. I don't know what the details of that are. I'm told that he had admitted to throwing the baby down onto the mattress a number of times. Exactly how many times and all the details, I don't know that and never took the time or effort to look into that or try to evaluate it. I was simply looking at the scenarios that were presented and what we could know about them and what is known about the science behind it. That's all I know.

Q. Doctor, to say you are going to rule out trauma, wouldn't it be important to read about the traumatic event?

A. The perspective when I look at cases like this, and this is no exception, are from the point of view of the pathologist. What is there? What objective evidence is there? And then someone may advance various scenarios or theories,

whatever, and that has to be weighed against the evidence that is there. And from my part of looking at this, I do not see trauma of a significant degree in this baby. I see sepsis, bacterial infection, shock, coagulopathy. That's what I see. I don't see the trauma that is said to be so severe that it killed this child.

Q. And that's your opinion without having read anything about the traumatic events from the father's own mouth; right?

MS. EFFMAN: Objection, asked and answered.

THE COURT: Overruled.

A. I have to, again, look at -- the proof of the pudding is in the tasting. What is the traumatic event that is there? If someone alleges various things, and I cannot see a counterpart of that in the autopsy, what am I to do? I can only can view this scenario through the lens of my discipline, my confidence and so forth. Show me the trauma. I do not have a major traumatic evidence in the autopsy. What I see is a medical condition, an infectious disease process. And is trauma buried in there somewhere? It could be, but it's certainly not the primary event or the primary process.

Q. Well, Doctor, you just testified that you weren't really qualified to give an opinion on that trauma; right? Didn't you just testify to that 20 minutes ago?

A. Let's define the limits of that.

Q. Doctor, I asked you a question. Did you just say

that 20 minutes ago?

A. To evaluate -- if somebody demonstrated something to me, I would not wish to go there, because I cannot quantify that. I would leave that up to a biomechanics individual, who could evaluate those things and probably has.

Q. And you didn't go there; right?

A. That's right.

MS. BOOK: Nothing further.

REDIRECT EXAMINATION

BY MS. EFFMAN:

Q. Doctor, demonstration or not, that doesn't change your opinion about the cause of this child's death; correct?

MS. BOOK: Objection, leading.

THE COURT: Sustained.

Q. Whether a demonstration is performed or not, Doctor, does that have any impact on your opinion as to cause of death in this case?

A. As I indicated, no.

Q. And you didn't go the route that Ms. Book is talking about, because the objective medical evidence doesn't go that direction; correct?

MS. BOOK: Objection, leading.

THE COURT: Sustained.

Q. Doctor, you did not -- Ms. Book referred to demonstrations. Did you feel the need to go to demonstrations

based on the other objective evidence you saw in the records, the slides and the autopsy report?

A. I could find no benefit in that, because it would be playing on impressions, rather than science and method. Biomechanics individuals would be able to evaluate those things, demonstration, whether I know them to be true or not. All I can say is against the testing that I'm aware of and seen, got all the data on, it doesn't appear that those injury scenarios reach an injury threshold. And to look at a demonstration or something like that, how could I -- how could I impugn what G-forces are there. I don't have instruments. It would be a totally unprofessional exercise.

Q. In fact, does the objective medical evidence in those records support your opinion as to cause of death, Doctor?

A. The objective evidence in the autopsy, which can't be fudged. I'm just saying, as I said before, the end point is, if allegations -- and allegations are made that this was a traumatic death. Show me the trauma. I don't see it. I can't see it through the overwhelming pathology due to infection.

MS. EFFMAN: Thank you, Doctor.

MS. BOOK: Nothing further.

THE COURT: Doctor, you may step down. Thank you. Okay. Members of the jury, we are going to break for the day at this time. As I was telling you yesterday or the day before, sometimes the need arises for the Court